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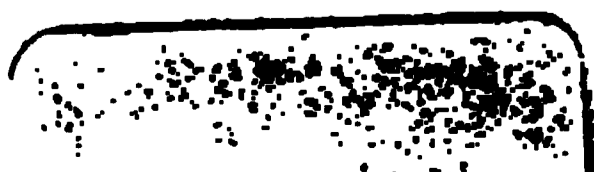
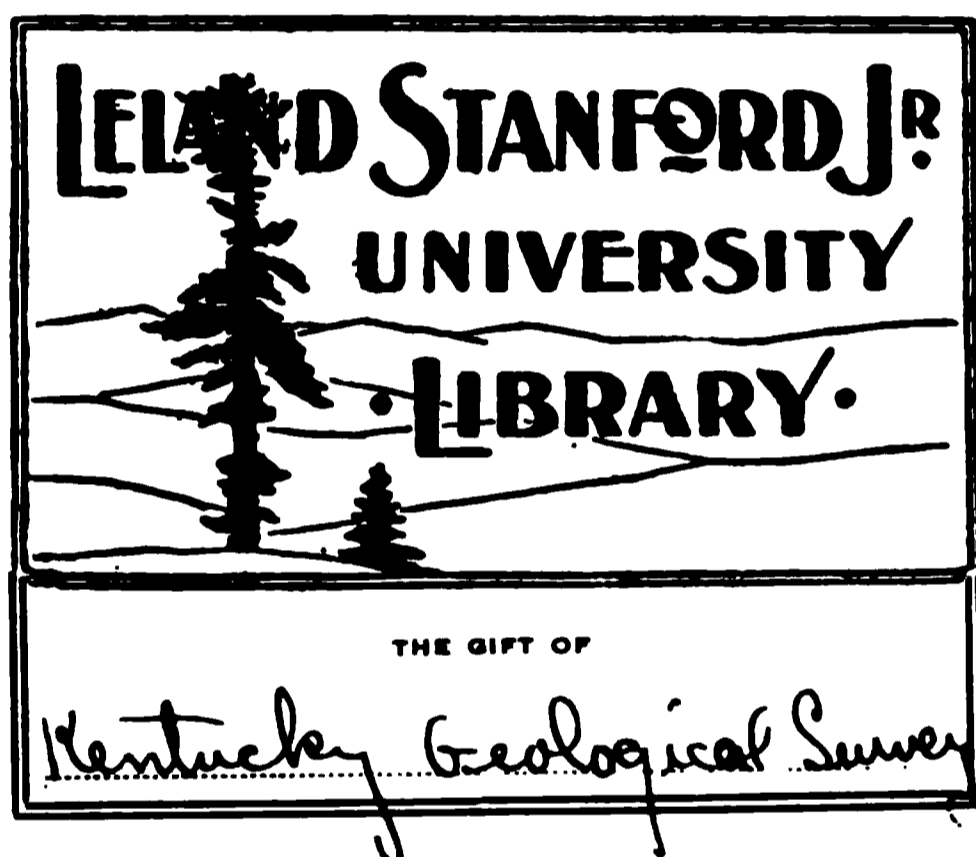
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**Department**  
**OF**  
**Geology and Forestry**  
**OF**  
**Kentucky**



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# KENTUCKY GEOLOGICAL SURVEY

(Reorganized April 1, 1920)

## SERIES VI

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THIS BOOK  
PUBLISHED ORIGINALLY AND NOW REPRINTED  
AS SERIES FIVE--BULLETIN ONE

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WILLARD ROUSE JILLSON  
Director and State Geologist  
FRANKFORT, KY.



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The Ross Creek, Estill County, Kentucky Oil Pool, during its development, was by far the most active in the State. The activity was brought on by the division and sale of a large tract (the J. F. Harris farm) into drilling lots 20x40 feet. There were about twenty oil companies, including the Comet Oil Co., the original lessee, that drilled this farm. In the above view there are fifteen producing wells and four drilling rigs. Photo by W. R. Jillson, 1919.

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A Geological Review of the Past Development and the  
Present Status of the Industry in Each of the  
One Hundred and Twenty Counties  
of the Commonwealth

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BY

WILLARD ROUSE JILLSON  
Kentucky State Geologist

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SECOND EDITION  
3,000 COPIES

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Illustrated with One Hundred Photographs  
Maps and Diagrams

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FRANKFORT, KY.  
1920



**THE STATE JOURNAL COMPANY**  
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F. PAUL ANDERSON,

Dean, College of Engineering,  
University of Kentucky,

August 14, 1919.

Lexington, Ky.



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In response to this tremendous call "The Oil and Gas Resources of Kentucky" was written and published in an original edition of 3000, which was received from the printer on December 15, 1919. Its appearance attested the popularity of the book. Written requests from all parts of the United States, Canada and Mexico, accompanied by postage, have literally flooded this office, many persons having made special trips to Frankfort to secure it. With the exception of a few copies sent to Kentucky and other important libraries, no copies have been issued gratuitously; yet today the first edition of 3000 copies is entirely exhausted, and a special private edition of 500 copies published by the author is all but gone.

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Succeeding development produced nothing startling in the way of large steady production until 1916, when the extension of the Irvine pool was proven. In 1917, the opening of the Ashley pool, and in 1918, the drilling of the Big Sinking pool, with its tremendous production, placed Kentucky in the list as one more of the important states in the Appalachian oil and gas field. Although surpassed in total value of oil and gas production by West Virginia and Pennsylvania, the new Kentucky fields have nevertheless attracted nation-wide attention; tens of thousands of wells have been drilled in the eastern and southern sections of the State; and the position of Kentucky as an important oil and gas producer has become thoroughly established.

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The office of geological investigation in any state is to secure the scientific and practical information respecting the state's resources. Such information must be largely general, rather than specific, in order to be applicable. No state report can ever be expected to cover the details of particular properties, and in fact, such is not the intention in preparing any government report. The material in a state report must only be considered as a guide, to any particular locality. Accurate and detailed information on any property must necessarily be compiled by some geologist who has been on the property in question. Such a man will be familiar, through personal experience, with the conditions there present. The value of any report, large or small, will always be determined by the measure in which it serves, as a guide to the development over the broad section, which its subject matter covers.

During the past three years, oil production in Kentucky has increased by leaps and bounds. From the total State production of 752,635 barrels in 1916, Kentucky has risen to what is estimated to be seven million five hundred thousand (7,500,000) barrels of crude oil in 1919.\* This rapid expansion has brought into this State thousands of operators and drillers. The material wealth of the State has been increased very greatly. The estimated total value of the oil and gas production for the present year is about twenty-two million of dollars (\$22,000,000). New capital in the form of developmental money has also come into the State and it is noteworthy that sections of Kentucky, which are now producing the most oil, have been raised in standard from those of comparative poverty and poor living, to those of comparative luxury. Within the last few months, the discovery of new extensive deposits of oil and gas has been made at points far from the limits of producing territory, and it is entirely possible, if not probable, that before another year rolls around, still other deposits of comparative value will be found in other sections of the State.

---

\*The actual production of crude oil in Kentucky during the year 1919 was 9,226,473 barrels.

In the face of a very widespread demand in this and other states for reliable and scientific information concerning the oil and gas geology, and the oil and gas prospects in all parts of Kentucky, sufficient time was not allowed for the preparation of a carefully compiled and detailed report. The very limited resources in the way of appropriations given this Department, have precluded many important field examinations. Much of the material herewith produced has been taken from the private consulting geological reports of the author. Data have also been freely drawn from many valuable published reports. It may be said that the present report is offered to the public by the Department of Geology and Forestry at a time when it is very greatly needed. Because of the peculiar circumstances attending, it may be further stated, that this bulletin has been prepared without any special appropriation or expense to the State for the principal work has been done by the writer, during his term of office, in addition to his regular work.

In preparing this report, the author has endeavored to harmonize popular and scientific views. The information which is demanded must necessarily be of a scientific nature, yet not too scientific; it must be of an accurate nature in some detail, and yet it must be understandable by those that have not been trained in the science of geology. It has been somewhat difficult to bring together these two viewpoints, and it must remain for the reader to determine in what measure the effort has been a success. Most every one is interested in knowing some thing about the occurrence of oil and gas in nature. It has been the author's special determination to make the text specific enough for all who read this bulletin to grasp the outstanding facts concerning the oil and gas problems in Kentucky.



State Geologist of Kentucky.

August 1, 1919.

Frankfort, Kentucky.



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## CHAPTER I.

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### THE REBORN OIL FIELDS OF KENTUCKY

Much has been said, but considerably less has been written, of an authentic nature, concerning the now rightly famous oil fields of Kentucky. Today, the interest, which not less than ten million investors in the eastern United States take in the success of this rapidly developing oil State, justifies some careful statement with respect to the really marvelous growth which has taken place.

Toward the end of the year 1914, and during the early part of 1915, the production of Kentucky crude petroleum was fast decreasing. Complete and accurate figures for these two years show a total production for the whole State of Kentucky that rapidly declined below 500,000 barrels per annum. It was sagely predicted at this time by many, as it had often been predicted before, that Kentucky as an oil state would soon take her place in oblivion, and for a time, with large new production from new fields in Kansas, Oklahoma and Wyoming jumping ahead with lightning-like rapidity so as to cause even the most expert calculators to indulge in mental gymnastics, this seemed to be about the truth.

However, a great surprise was in store for the pessimists, and hundreds and hundreds of thousands of small salaried persons owning a speculative disposition, and for whom oil stocks handled on low margins were to provide continuous entertainment, never knew of the interesting things which were immediately in store for them. It all happened in the first part of 1915, when Charles Dulin, an oil operator at Irvine, Estill County, Ky., drilled in a well of promise in a hitherto untested section on Cow Creek. For a time, the results obtained in this well did not become public information, but soon the whole information of the big strike leaked out, and a wild scramble ensued for acreage in the immediate vicinity.



YESSE OLIVER LEASE, ALLEN COUNTY.

This is a small lease of about twenty-one acres, but an excellent producing property. Fifteen wells are pumping on this farm. Many farmers in this section have sold their royalty and surface rights and moved away leaving the operators undisturbed. Photo by W. R. Jilison, July 10, 1919.

This period witnessed then the rebirth of the Kentucky oil fields and ushered in a time of such renewed activity and such large rapid production as this State, or any of the immediately adjoining states, had never before seen. Drillers, contractors, brokers, promoters, salesmen, mechanics, supply men and nondescript individuals followed one another rapidly by tens and by hundreds into Kentucky from the older fields of Pennsylvania, West Virginia, Ohio, Indiana, Illinois, Kansas and Oklahoma. In almost less time than it takes to tell it, housing conditions at Irvine became entirely inadequate. The hospitality of farmers in the immediate vicinity was severely overtaxed, and the hotels of more distant cities like Winchester, Lexington and Mt. Sterling were crowded with men who had made the "Klondike Rush" to Kentucky.

In the face of the most difficult drilling conditions, development went forward, and before the end of 1916, the production of Kentucky stood at one million barrels with every weekly pipe line run showing remarkable and



SHALLOW DRILLING IN ROSS CREEK, ESTILL COUNTY.

View on the J. F. Harris farm shows the intensity of the drilling effort in this particular pool. Photo by R. L. McClure, March, 1919.

unprecedented advances. By the end of 1917, the production had risen to three million barrels and, at the end of 1918, the increase had not stopped at four million. The year 1919, the greatest year in the oil history of Kentucky, which has witnessed the development and zenith flush production of such pools as the Ashley, the Big Sinking, the Scottsville, and the Gainesville, will show, it is thought, a total production of crude oil in Kentucky of at least 7,500,000 barrels, if the present production continues. Already, with six months of this year past, the figures, still incomplete, show a total of 3,142,488 barrels. This is greater than the total production of the year 1917 and larger, by many thousands of barrels, than all of the production from the State of Kentucky prior to the year 1900.

#### KENTUCKY, AN OIL STATE ONE HUNDRED YEARS OLD.

In order to get a true idea of the importance of recent development in oil and gas in Kentucky, it is necessary to look back over a whole century to the year 1819, when Martin Beatty of Abingdon, Virginia, drilled in the first oil well in Kentucky on the South Fork of the Cumberland River close to the Tennessee

line in what is now McCreary County, then Wayne County. Beatty had no idea that he was going to get oil. In fact he did not want oil, and knew nothing about oil. He was drilling a shallow well for salt which,



OHIO COUNTY OIL PROPERTIES.

View of the Howard No. 1 well which was drilled to a total depth of 1,740 feet in 1913. Photo by W. R. Jillson.

at that day and time, with railroads unknown, and overland mountain transportation extremely difficult and laborious, was a necessity of much greater importance.

Written records of this early well are few and vague, but it may be supposed that the inhabitants of this section, as well as Beatty, the driller himself, were disgusted when they secured oil, for their chances of recovering salt brine from such a well were spoiled. The farmers in this section, however, soon found that this new rock oil—as the newly coined word, “petroleum” indicates—had some advantages, which they did not at first suspect. It came to be regarded as a universal cure-all for many kinds of ills to which the human flesh falls heir, and was also discovered to be of some service in ridding hogs and other farm animals of vermin.

Cumberland County, forty miles to the west, followed in 1828 with flowing oil production from what are now known to be the upper Ordovician rocks. Here was developed at Burkesville—again as the result of salt water well prospecting—what came to be known throughout the world as the Great American Well. The man who drilled it, whose name has since been lost, said that he would either get salt water or drill into hell. He did not realize that he was going to be forced to literally eat his words. When flowing production was encountered at a shallow depth and the escaping oil and gas caught fire, he, following the superstitious tendencies of his class, thought that he had opened up the infernal regions beneath. Report, again coming from the lips of very old inhabitants of this section, has it that he acknowledged that he had failed in getting salt, but had done what he had promised and opened the door to higher thermal regions. He was so thoroughly convinced of his failure that he did not stop to sell his belongings, but immediately left the country to return in disgust to his native hills in Pennsylvania.

The oil from this phenomenal well flowed unrestrained down the little branch in which it was drilled into the Cumberland River, to a point forty miles below Burkesville, where a grass fire ignited it. There resulted the very unusual phenomenon of a burning river, for the flames crept back little by little to the mouth of the well. People of this day and time who have become so calloused to the new and unusual things that happen, will have difficulty in appreciating the consternation of the simple farmer folk of this region, who were thus introduced

in an accidental way to the highly inflammable characteristics of the new rock oil—petroleum. A barrel of this oil was shipped down the Cumberland and through New Orleans to England with the avowed purpose of having it analyzed by a British chemist. Unfortunately, before it fell into the hands of the proper parties, suspicion fastened itself upon the dark, oily, unfamiliar cargo, and it was dumped overboard into the Atlantic. Nevertheless, the growing popularity of this petroleum, from a medicinal standpoint, caused its fame to spread, and before long it became commercialized. It was put up in small, dark, half-pint bottles, with the name "American Oil" blown in them. They were sold everywhere for 50 cents each. In this day and time, when high grade, Kentucky, crude oil sells for \$2.70 per barrel, it may be pointed out that, through an irony of fate, this early pro-



ROSS CREEK DEVELOPMENT.

View of the activity of the Bourbon Oil and Development Company on the J. F. Harris farm. Photo by R. L. McClure, March, 1919.

duction secured a price per barrel which was 125 times greater than the present, in fact, about \$340 per barrel.

Great advances, however, were being made in Pennsylvania during this period, and some of the advantages of petroleum as a fuel, especially for kerosene, became known. Following the discovery of oil near Burkesville, salt well drilling again opened up oil bearing strata in the lower coal measures near Barbourville in Knox County. This well, a shallow one, flowed for a short time. With its discovery, the vertical, geological delimitations of the future "producing sands" of the State of Kentucky were established. In fact, subsequent prospecting has shown no commercial production, either higher or lower, in the geological scale, though it is true that much has been found in between the limits that were not known at this early date.

The temporary halt in the development of the oil and gas fields occasioned by the Civil War was suddenly broken by a wave of excitement in prospecting, which spread over the entire State of Kentucky during the latter part of the '60s. Wells were drilled everywhere. Allen, Barren, Clinton and many other counties joined the list of commercial producers. During the latter part of the nineteenth century, a great demand for crude oil for the purpose of kerosene refining, as well as for a growing list of by-products, restimulated field activity and resulted in the bringing in of reports of oil and gas production, and shows in practically every county in the State outside of the central Blue Grass area.

Louis H. Gormley, an experienced oil operator, coming from New Castle, Penn., in 1890, journeyed over 150 miles up the Big Sandy River into Johnson, Floyd, Magoffin, Knott, Letcher and Pike Counties. At that time, there was no railroad in this part of Kentucky, and in fact, one did not come into this section until nearly fifteen years later. Observing the general similarity of the geology and topography of this part of Kentucky with that of the oil bearing portion of his native state, Pennsylvania, he came to the conclusion that circumstances favored the finding of oil in Floyd County. With an adventurous partner, he drilled in, in 1892, at the mouth of Salt Lick Creek on Right Beaver Creek, at a depth of about 1000 feet, the first flowing oil well of eastern Kentucky. This well was destined to become the nucleus of the now famous Beaver Creek oil pool, which



HAULING A RIG IN THE BIG SANDY VALLEY.

Eastern Gulf Oil Company moving its heavy National rig over very poor roads from Bull Creek to Left Middle Creek, Floyd County, Ky. Photo by W. R. Jillson, March, 1918.

has been producing oil daily ever since. The news of the strike spread rapidly and caused a great influx of new capital and enthusiasm. Other wells were drilled in this and adjoining sections, and Floyd, Knox and Wayne Counties came to the front with substantial, though small, new oil production from the "deeper sands" of the Pennsylvanian and Mississippian systems.

The second chapter of the development of Kentucky oil fields came to a close with Meade, Martin and Breckinridge Counties listed as gas producers. The picturesque side of development was inevitable for in none of these counties, at this time, were modern means of transportation available. Supplies had to be secured by long, tortuous, pole boat voyages from Ohio River trading points. As compared to the present, it was indeed a day to try the patience and ingenuity of the most clever and most hardy men. Inconveniences and disadvantages were met everywhere, and the low price of crude production and the difficulty with which it was placed on the market made small wells much less attractive than they are now.

## DEVELOPMENT SINCE 1900.

Oil prospecting in Kentucky up until the year 1900 may be said to have been largely preparatory for the greater strikes which were to come. In the century year of 1900, the Ragland oil pool in Bath, Rowan and Meniffee Counties, producing a black, thick, low gravity oil, was drilled in. The production of this field, now nearly exhausted, came from the Onondaga limestone, which has come to be known by drillers and oil people generally as the "Corniferous" or "Irvine" sand. It is found at the base of the Kentucky Devonian system. In this field, the oil "pay" was found at various depths of from 200 to 900 feet below the surface.



FIELD ACTIVITY ON ROSS CREEK, ESTILL COUNTY.

View on the Millie Freeman farm operated by the Lincoln Oil Company. Photo by R. L. McClure, March, 1919.

In the following year, 1901, gas from the same horizon was "drilled in" in the Meniffee field at a depth of about 600 feet. This field was early commercialized for the central cities of Kentucky, and is now relatively unimportant, because nearly exhausted. The Sunny-

brook pool of Wayne County was drilled in in the same year, oil coming at a depth of 870 feet from the "Stray," "Mt. Pisgah," "Beaver," "Otter," "Cooper" and "Slickford" sands of the Mississippian System. Later on, deeper drilling revealed the lower Sunnybrook sand from the Trenton rocks of the Ordovician System as an oil producer.

During this period, renewed activity and deeper drilling in all of the older fields continued with varying success. In 1903, the Campton oil pool of Wolfe County created the first recent sensation, oil being struck again in the Onondaga limestone at a depth of 1,000 to 1,250 feet. All told, about 300 wells were drilled into this small field, each averaging in production about fifty barrels. It was at this time that a small amount of oil production was first secured by rank wildcatters near Irvine in Estill County. The extreme shallowness of the oil horizon or "pay" here, however, caused this small pool to be soon drilled up and exhausted. In the same year, the Busseyville and Fallsburg pools of Lawrence County were opened, oil being produced from what is known as the Berca "grit," at a depth of from 1,400 to 1,600 feet. The production from this pool was never large, but like that of all the deeper drilling in Eastern Kentucky presented the very distinct advantage of dependability and long life. Within the last three or four years, the production of this section has been increased from about 1,800 barrels per month to the present production of about 72,000 barrels per year.

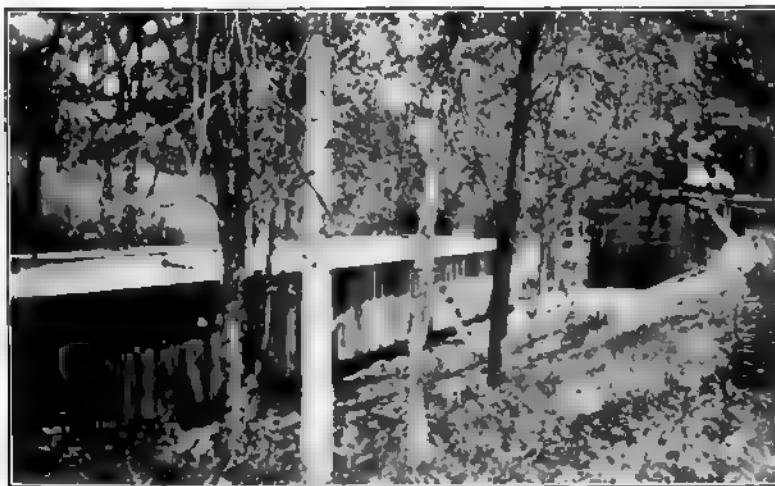
The Cannel City pool, in Morgan County, was ushered in by a 700-barrel gusher, which was drilled in in 1912. Great activity followed the opening of this pool, and in 1913, a maximum production of twelve thousand barrels of crude oil per month was established. The pool, however, was relatively short lived, and is to-day of largely historical importance, though still producing.

### THE PRESENT PERIOD.

Increasing from a total annual production of 62,259 barrels in 1900 to 1,217,337 in 1905, but 1,213,548 in 1906, Kentucky crude oil production dropped off greatly, till in 1915, the best figures obtainable show only 407,081

barrels. It was at this time that the pessimist's cry grew loudest. Kentucky was disclaimed as the southwestern part of the Appalachian oil field, and men who considered themselves real oil producers stayed away from the State. Over production in the oil market, due to the opening of the Cushing and other new pools of Oklahoma and Kansas, was, however, the real cause of the inactivity at this time.

With renewed wartime demands for crude oil, however, and an increase in prices of all grades generally, a restimulation of exploration was effected, with the result that in 1916, the Irvine pool in Estill County, Ky., was extended to the east and to the south. In Powell County, the Ashley pool was opened in 1917. In Lee County, the greatest producer in the Kentucky oil world of recent times, the Big Sinking pool was drilled in 1918, and in Allen County, southern-central Kentucky, wild cat drilling opened up the Gainesville and Scottsville pools in 1918 and 1919. In the early summer of 1919,



COVERED STORAGE, ANGIE McREYNOLDS' LEASE.

One of the great problems confronting the producer on exceptionally high productive lease like the McReynolds is the disposal of the "flush production." On this lease when a gusher flowing a reported 1,000 barrels came in, all other wells on the lease had to be shut down temporarily. Photo by W. R. Jillson, July 20, 1919.



**WHERE TOMBSTONES AND OIL WELLS COMPETE.**

View across the little country cemetery south of Scottsville, Allen County, Ky., to the Angie McReynolds' lease which adjoins. Photo by W. R. Jhllson, July 20, 1919.

the Angie McReynolds pool of Allen County, and the Jake Moulder pool of Warren County, were drilled in. These last named seven pools centralize the greatest activity in Kentucky today, and in total, are producing about 125,000 barrels per week as reported from pipe line runs of July, 1919.

In all of these pools, the production comes from the Onondaga limestone, commonly known to the drillers as the "Corniferous" or "Irvine" sand, with this exception that in Allen County, at least some of the lower production certainly comes from the Niagaran limestones and shales just below the Onondaga. In the Ashley and Big Sinking pools of Lee and Powell Counties of eastern Kentucky, the Onondaga or "pay" of oil sands ranges from 800 to 1,300 feet below the surface. In Allen County the production comes from a depth of about 250 to 400 feet below the surface. There are, at the present, about 1,000 wells being drilled in Kentucky, and of these about 250 are in Allen County alone. Lee County, containing the Big Sinking pool, which is in point of years older in its development, has about 450 rigs at work, and the remaining 300 are scattered throughout the State.

The production from the Big Sinking and its associated pools, coupled with that of the Gainesville and other Allen County pools, will, for the years 1918 and 1919, exceed by many thousands of barrels the total production for the entire State of Kentucky up to the present time. What promises to be one of the most spectacular new pools in Kentucky is the recently discovered Moulder pool in southeastern Warren County on the



THREE OILY SISTERS.

A battery of three 500-barrel tanks standing full on the Jake Moulder lease, Warren County. This storage awaits completion of the new four-inch pipe line to Smith's Grove. Photo by W. R. Jillson, July 20, 1919.

Barren River. The oil here is found with large quantities of salt water, and a strong gas head, and the largest and most recent well, No. 8, drilled in on this lease had a flush production, it is estimated, of 2,000 to 3,000 barrels. This well was a real gusher, the largest Kentucky has ever witnessed, and flowed, despite vigorous efforts to close it in, for eighteen hours. A six-inch stream spurted fountain-like over 100 feet above the surface, and oil covered the surrounding territory and flowed down an adjoining creek like water. Just what this well will actually do cannot be said at present, for pipe line connections have not as yet been made and temporary tank storage has been exhausted.

With the drilling in of spectacular wells, running everywhere from 100 to 1,000 barrels in the Ashley, Big



SIGN OF THE TIMES IN WARREN COUNTY.

A battery of eight 250-bbl. wooden tanks recently completed and almost immediately filled on the Jake Moulder lease. Photo by W. R. Jillson, July 20, 1919.

Sinking, Scottsville, Gainesville and Moulder pools, oil excitement has reached its maximum. Today, there are not less than 100,000 men interested directly in the oil producing business in Kentucky. Leases, which three or four years ago could be secured for \$1.00 a farm, or at a nominal rental of 10c or 25c an acre, now sell from the farmer in the oil producing sections for \$10 to \$50 per acre. New leases undrilled, written by the owner of the land, today are very rarely secured for practically all of the available territory, for 50 to 100 miles of any producing field, has already been leased, and much of it prospected. Leases adjoining production sell for from \$100 to \$500 per acre, and adjoining especially attractive producing leases, acreage may not be secured for less than \$1,000 to \$3,000 per acre. This is what the professional oil man calls "proven stuff," and is bought with the idea that it may be depended upon to produce oil. Many leases, which are partly drilled up and producing, are sold on what is called a production

basis. The lease is purchased, together with its production, on a basis of the amount of oil which it will produce on a ten day test, and the prices which prevail



BUCK CREEK OIL POOL, LINCOLN COUNTY, KENTUCKY.

Views of producing wells, pumping stations and storage tanks of the Belvedere Oil Company and the Daniel Boone Oil Company. Photo by W. R. Jilson, March 20, 1919.

vary from \$1,000 to \$1,500 per barrel per day. It can be seen by simple arithmetic that a 100 barrel well sold in such a way is very valuable, and even a child can appreciate that as the number of wells or their size in barrels is increased, the interest and the excitement increase.

In the train of the oil development in Kentucky has come a vast amount of oil promotion with the result that there are today in Kentucky 612 oil corporations with an estimated total capitalization of \$80,143,000.00. This fabulous amount of money, conceivable only to the idle rich and to those to whom the juggling of unearned increments has become a pastime, is representative of the importance of the oil industry in this State. It is also indicative of the growth of the industry during the past four years, for prior to 1916, the total amount of wealth invested in exploring for oil in Kentucky was hardly a fraction of what it is at present. Over capitalization,

watering of stocks, fabulous prices for only mediocre properties have been some of the attending ills which have accompanied the development of the oil industry in Kentucky.

The rapid decline of some wells of shallow depths, which were prolific flush producers, has contributed some uneasiness to the promoters of get-rich-quick schemes. The zenith of high production in the proved fields of the Big Sinking and Gainesville pools has been



#### ALLEN COUNTY CRUDE OIL GOING IN TO STORAGE

View at the ends of five gathering lines of the Angie McReynolds' lease. Approximately 60 barrels per hour were being emptied into the receiving tank at the time this photo was snapped. Photo by W. R. Jilison, July 20, 1919.

reached. New pools like the McReynolds and the Moulder still remain uncertainties as to the future. The wild rush for Kentucky oil stock reached its apex in February of this year, and since then oil stocks have been less subject to demand than they were in the six months preceding. At the present, the color generally of the oil stock trading business is decidedly off, and the wise ones are withdrawing their investments from companies which have an unstable character. Federal investigations of the manipulations of trust moneys and stocks of oil companies have had a rather depressing effect on the purchasing public and the straw before the wind indicates the coming of a more reasonable and standardized order of affairs.



**LARGEST AND MOST MODERN KENTUCKY REFINERY.**  
The above view shows a part of the new Standard Oil Company of Kentucky Refinery at Louisville. This plant is one of the big consumers of Eastern Kentucky Crude.

## CHAPTER II.

### DATA OF KENTUCKY OIL AND GAS PRODUCTION

While the financial side of the oil industry has been passing through an important period of rectification, development in the fields has been going rapidly forward. New wells are being brought in at the rate of from 75 to 100 per week, and new pipe lines and refineries are being constructed. In Louisville, the Standard Oil Company of Kentucky has about completed a new 2,000 barrel refinery on its riverside purchase, and this refinery is one of the most up-to-date and complete in the United States. There are besides, in this State, the Etna and the Stoll Refining Companies, which together will handle about 1,000 barrels per day. In the eastern Kentucky fields, there are two or three small refineries, and at Bowling Green in Warren County, a refinery with 500 barrel capacity is now under contemplation. In eastern Kentucky, the Cumberland Pipe Line Company handles



**SOUTH FORK STATION.**

An important pumping plant of the Cumberland Pipe Line Company, in Powell County, Kentucky.

all of the crude petroleum from Wayne County, Beaver Creek in Floyd County, Irvine, Station Camp, Ross Creek and Miller's Creek in Estill County, Ashley in Powell County, Big Sinking in Lee County, Campton in Wolfe County, Cannel City in Morgan County and Busseyville in Lawrence County. This line passes to the northeast through West Virginia, and connects with the Eureka Pipe Line, which has a terminus at Philadelphia, Penn. In Allen County, the Indian Refining Company has a pipe line in the Gainesville and Scottsville and Southern pools, and takes its oil by tank cars to its Lawrenceville, Ill., refinery. A small part of Allen County production is also handled in tank cars by very small consumers. The American Pipe Line, recently purchased from receivers' sale, takes some of the Gainesville oil to Bowling Green. A new pipe line is contemplated from Bowling Green to northwestern Allen County pools. The Smith's Grove Pipe Line, tapping the Warren, Allen and Barren County pools along the Barren River, with terminus at Smith's Grove, is now completed. A summary of production, as based on pipe line runs from the eastern Kentucky and Allen County fields, is as follows:

PRODUCTION OF PETROLEUM IN BARRELS IN KENTUCKY  
FROM 1883 TO 1919.

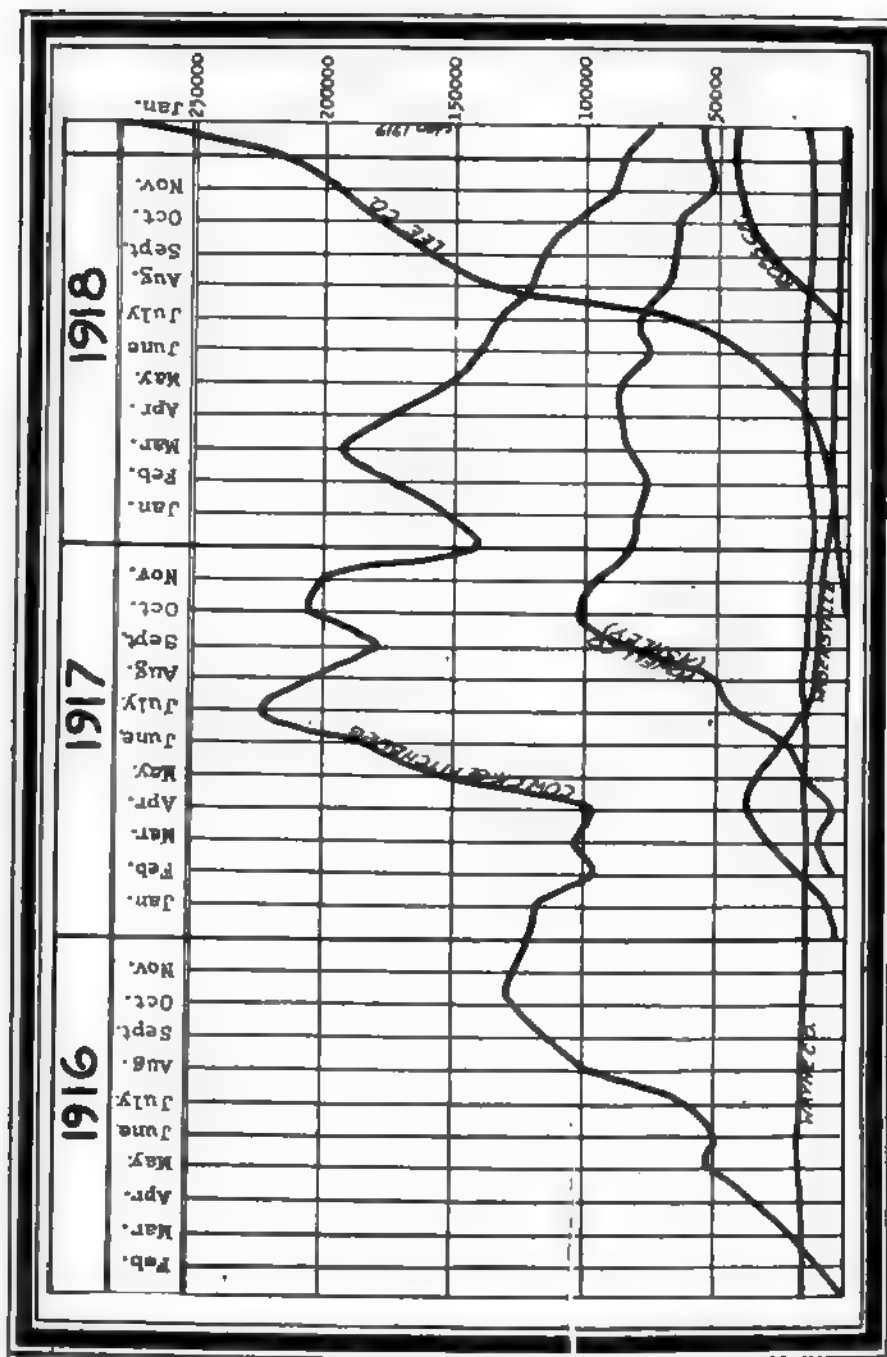
1883	.....	4,755
1884	.....	4,148
1885	.....	5,164
1886	.....	4,726
1887	.....	4,791
1888	.....	5,096
1889	.....	5,096
1890	.....	6,000
1891	.....	9,000
1892	.....	6,500
1893	.....	3,000
1894	.....	1,500
1895	.....	1,500
1896	.....	1,680
1897	.....	322
1898	.....	5,568
1899	.....	18,280
1900	.....	62,259
1901	.....	137,259
1902	.....	185,331

OIL AND GAS RESOURCES OF KENTUCKY

1903	.....	554,286
1904	.....	998,284
1905	.....	1,217,337
1906	.....	1,213,548
1907	.....	820,844
1908	.....	727,767
1909	.....	639,016
1910	.....	468,774
1911	.....	472,458
1912	.....	484,368
1913	.....	524,568
1914	.....	502,441
1915	.....	437,274
1916	.....	1,144,750
1917	.....	3,088,160
1918	.....	4,035,950
1919	.....	9,226,473

PRODUCTION OF EASTERN KENTUCKY PETROLEUM FIELDS.  
CUMBERLAND PIPE LINE COMPANY RUNS FROM WELLS.

Year	For Year Total Runs Barrels	Average Daily Barrels
1913 .....	522,550	1,431.6
1914 .....	479,609	1,313.9
1915 .....	407,081	1,115.3
1916 .....	1,144,750	3,136.3
1917 .....	3,015,640	8,262.0
1918 .....	4,035,950	11,057.7
1919 (First six months, Jan.-June).....	2,922,670	15,884.0



CUMBERLAND PIPE LINE PRODUCTION CURVES BY MONTHS FOR EASTERN AND SOUTHEASTERN KENTUCKY.

## OIL AND GAS RESOURCES OF KENTUCKY

CRUDE PETROLEUM PRODUCTION IN EASTERN KENTUCKY FOR THE YEARS 1916-1917-1918.  
MONTHLY BUREAU OF MINES BY DISTRICT-DEPARTMENT OF THE INTERIOR

YEAR	MONTH	Wayne Co.	Lawrence County	Morgan	Cow Creek and Pritchburg	Campion Stillwater	Beaver Creek	Ragland	Warsawville	Ashley	Torren and Lee Co.	Ross Creek	Olympia
1916	January	17,899	1,829	1,683	2,411	2,354	948	3,646					
	February	17,040	2,510	2,784	8,627	2,906	904	2,564					
	March	17,768	3,533	19,405	2,906	2,906	838	3,075					
	April	18,574	2,577	2,083	24,650	2,911	1,079	3,231					
	May	18,220	3,347	1,662	53,769	2,220	964	3,166					
	June	16,299	3,239	1,927	48,138	3,231	853	2,732					
	July	16,156	3,353	1,732	58,769	2,190	644	3,059					
	August	16,885	3,676	2,839	96,592	2,846	782	3,180					
	September	14,535	3,190	1,677	111,736	2,692	1,306	2,671					
	October	15,774	4,434	1,840	126,310	2,469	1,330	2,970					
	November	14,433	2,886	1,605	127,732	2,805	649	2,540					
1917	January	13,046	4,277	1,596	120,334	2,370	664	2,685					
	February	14,867	3,687	1,748	118,464	3,165	849	2,330					
	March	15,153	3,936	1,365	94,354	2,111	478	3,348					
	April	14,850	4,714	1,490	104,886	2,441	761	1,914	3,918				
	May	14,326	4,462	2,116	94,581	3,846	599	1,914	30,376	3,918			
	June	14,967	4,385	2,746	151,290	3,763	688	2,229	35,367	4,904			
	July	14,979	4,646	1,458	180,586	3,820	897	2,827	33,574	13,683			
	August	14,312	5,936	1,607	222,957	4,484	642	3,037	24,976	42,539			
	September	12,645	6,936	1,396	204,980	2,943	567	1,917	14,901	48,933			
	October	12,444	4,871	1,230	176,948	3,217	949	2,511	10,762	83,672			
	November	13,463	5,464	1,936	206,779	3,473	480	2,175	9,591	101,762			
1918	January	11,476	5,265	1,302	201,917	3,590	424	1,539	85,623	85,623	318		
	February	11,271	4,280	1,132	138,559	2,558	530	1,558	7,520	82,068	626		
	March	14,470	4,972	1,564	150,490	2,827	589	1,070	4,741	79,780	3,946		
	April	13,889	6,322	1,235	172,891	2,911	692	1,591	6,110	74,164	4,518		
	May	15,396	6,077	1,524	191,459	2,443	458	2,136	5,653	84,747	4,577		
	June	16,374	5,924	1,464	135,469	2,470	458	1,924	3,748	87,381	11,898		
	July	15,338	5,965	1,683	152,873	2,783	931	1,385	3,959	87,487	11,898		
	August	12,533	5,379	1,582	139,578	2,717	330	1,030	2,853	74,298	21,782	2,982	
	September	13,852	5,968	1,765	125,293	2,062	533	1,678	2,471	69,715	21,782	15,317	496
	October	12,785	5,325	1,445	116,111	2,859	711	1,479	2,471	64,753	126,355	28,017	106
	November	12,287	5,136	1,278	108,634	2,577	350	1,539	1,982	54,063	158,290	27,757	306
	December	12,267	5,686	1,509	88,298	2,474	1,791	1,197	1,586	50,717	173,307	30,531	320
1919	January	13,251	6,311	1,151	73,587	1,666	609	1,684	2,310	54,828	213,704	42,859	239
	February	13,251	6,311	1,151	73,587	1,818	609	1,394	1,291	55,165	280,356	41,427	

KENTUCKY OIL AND GAS PRODUCTION

23

PRODUCTION OF CRUDE PETROLEUM IN EASTERN KENTUCKY  
FIELDS FOR THE YEARS 1912-1916.

MINE OF CUMBERLAND PIPE LINE CO.

Year	Month	Bbls.	Total Per Yr.	Average Per Day	Remarks
1912	September	38,417		1,298.2	
	October	37,758			
	November	39,271			
	December	40,343			
1913	January	41,982	522,550	1,431.6	Cannel City Pool, Morgan County.
	February	36,751			
	March	39,194			
	April	39,794			
	May	42,716			
	June	39,068			
	July	48,119			
	August	49,766			
	September	52,328			
	October	46,082			
	November	43,929			
	December	43,821			
1914	January	45,091	479,608	1,313.9	
	February	42,737			
	March	52,137			
	April	48,555			
	May	43,017			
	June	42,464			
	July	40,698			
	August	24,955			
	September	19,249			
	October	49,494			
	November	34,960			
	December	36,224			
1915	January	34,898	407,081	1,115.3	
	February	34,255			
	March	38,204			
	April	38,995			
	May	37,270			
	June	35,458			
	July	32,642			
	August	32,504			
	September	30,930			
	October	29,297			
	November	31,926			
	December	30,701			
1916	January	30,799	1,144,750	3,136.3	Cow Creek Pool, Estill County.  Fitchburg District, Estill County.
	February	38,345			
	March	49,242			
	April	63,104			
	May	83,348			
	June	76,489			
	July	85,973			
	August	125,799			
	September	156,147			
	October	162,652			
	November	162,652			
	December	147,213			

## OIL AND GAS RESOURCES OF KENTUCKY

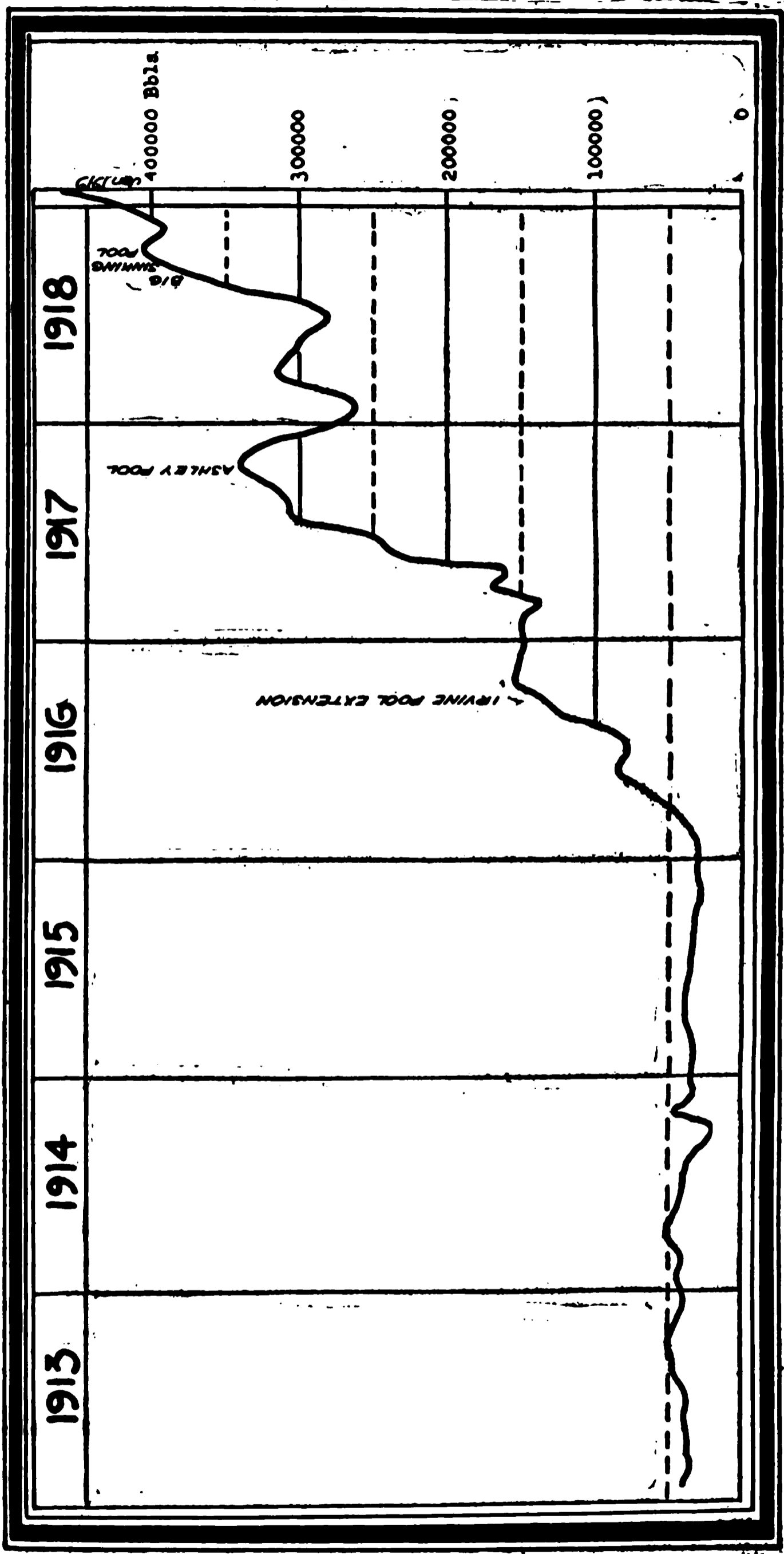
Year	Month	Bbls.	Total Per Yr.	Per Day Average	Remarks
1917	January	150,330	1,015,640	8,262.0	Ashley Pool, Powell County.
	February	136,138			
	March	171,326			
	April	162,316			
	May	236,666			
	June	254,108			
	July	308,941			
	August	311,302			
	September	323,897			
	October	346,381			
	November	332,888			
	December	280,936			
1918	January	262,424	1,025,950	11,057.7	Big Sinking Pool, Lee County.
	February	285,906			
	March	316,753			
	April	306,849			
	May	298,022			
	June	280,087			
	July	304,058			
	August	360,588			
	September	336,018			
	October	408,537			
	November	394,111			
	December	423,510			
1919	January	476,488		15,370.0	
	February			16,160.0	

## 1919 PRODUCTION, CUMBERLAND PIPE LINE RUNS BY MONTHS

Month	Total Runs Barrels	Average Daily Barrels
1919—January .....	476,488	15,370.0
1919—February .....	451,857	16,160.0
1919—March .....	485,588	15,680.0
1919—April .....	500,007	16,667.0
1919—May .....	481,439	15,530.0
1919—June .....	527,291	17,576.0

## TANK CAR, ALLEN COUNTY CRUDE

Year	Barrels
1915 .....	191.26
1916 .....	27,616.23
1917 .....	31,936.94
1918 .....	20,990.86
1919 (2½ months) .....	1,774.57
<b>Total barrels .....</b>	<b>82,509.86</b>



CRUDE OIL PRODUCTION OF THE ESTILL-LEE-POWELL DISTRICT.

## OIL AND GAS RESOURCES OF KENTUCKY

PIPE LINE RUNS, ALLEN COUNTY CRUDE  
(Indian Refining Company)

Year	Scottsville	Rodemer	Total
1918 .....	26,223.25	9,886.63	38,119.88
1919 (2½ months).....	38,455.56	17,906.71	56,362.27
Total barrels .....			94,482.15

## INDIAN REFINING COMPANY

Total Pipe Line and Tank Car Shipment From Allen County,  
January-June, 1919

	Barrels
January .....	16,525.12
February .....	24,177.61
March .....	33,172.49
April .....	45,092.05
May .....	50,517.03
June .....	50,333.71
Total .....	219,818.01

## SUMMARY CRUDE OIL PRODUCTION IN KENTUCKY

January-June, 1919

Cumberland and Indian Pipe Lines Only

	Barrels
Cumberland .....	2,922,670
Indian .....	219,818
Total .....	3,142,488

The total of 3,142,488 barrels of Kentucky crude oil for the first half of the year 1919 falls a little short of the actual amount which cannot exactly be obtained. A number of small transportation corporations take oil from both the eastern Kentucky and the Allen, Barren, Warren County fields, and the figures of their volume of business are not at the present forthcoming.



## AN OIL PIPE LINE COMPETITOR.

A large amount of oil is now annually transported from Beattyville to Louisville Refineries via the Kentucky River. Photo by W. R. Jillson, June 25, 1919

VALUE OF PETROLEUM PRODUCED IN KENTUCKY  
1904 TO 1919\*

1904	.....	\$984,938
1905	.....	943,211
1906	.....	1,031,629
1907	.....	862,396
1908	.....	706,811
1909	.....	518,299
1910	.....	324,684
1911	.....	328,614
1912	.....	428,842
1913	.....	675,748
1914	.....	498,556
1915	.....	418,357
1916	.....	2,189,812
1917	.....	8,029,216
1918	.....	10,493,470
1919 (estimated)	.....	19,500,000

The market price of Kentucky crude oil is now \$2.70, this price covering all grades designated as, "Somerset." The single exception to this general statement is that of the small Ragland production which is designated by the same name and sells for \$1.25 per barrel. The pe-

\*Mineral Resources of United States, U. S. G. S.

troleum of Kentucky is for the most part light green in color; very fluid, high in gasoline content with a gravity which runs generally between 32 and 38 Baume scale. The extremes, however, are much wider apart. The lowest of record is 22 Baume, the sample oil specimen coming from the Ragland pool in Bath County. The highest of record is 51.6 Baume from Johnson County.

#### BAUME DENSITY OF KENTUCKY CRUDE PETROLEUM

Lab. No.	Degrees Baume.
1. 43475—Allen County .....	30.
2. 36292—Probably Bath County .....	24.9
3. 36293—Probably Bath County .....	25.4
4. 36294—Probably Bath County .....	24.2
5. 36295—Probably Bath County .....	24.5
6. 36269—Probably Bath County .....	24.5
7. 36270—Probably Bath County .....	25.0
8. 36271—Probably Bath County .....	25.0
9. 36229—Probably Bath County .....	24.7
10. 36330—Probably Bath County .....	24.0
11. 36331—Probably Bath County .....	24.4
12. 36332—Probably Bath County .....	24.7
13. 36333—Probably Bath County .....	25.2
14. 36334—Probably Bath County .....	32.0
15. 36206—Probably Bath County .....	23.7
16. 25857—Probably Bath County .....	25.2
17. 14987—Morehead Oil & Gas Co. ....	22.5
18. 14565—"Ragland," Bath County .....	22.0
19. 14522—Yale Oil Company, Bath County .....	41.0
20. 14314—E. B. Fletcher, Powell County .....	22.0
21. 11964—From Bath County .....	22.6
22. 11190—Shouse Well, Hendrick Farm, Bath County.....	28.0
23. 10325—For J. B. Hoeing .....	35.5
24. 10241—John Williams, Lewis County .....	27.0
25. 10156—From Scottsville, Allen County .....	45.0
26. 9888—From Clinton County .....	41.0
27. 9749—Rose Run Iron Co., Bath County .....	33.0
28. 9750—From M. Carey Peter, Louisville .....	28.0
29. 9751—Lincoln County, near Stratford .....	32.0
30. 9431—From D. F. Frazee, Lexington .....	25.0
31. 9283—Isola Oil & Gas Co., Beech Grove, Ky. ....	28.0
32. 9238—Wood Richardson, Flemingsburg .....	38.9
33. 51656—Bowling Green, Warren County .....	38.9
34. 51839—Bowling Green, Warren County .....	38.5
35. G-3785—Powell County .....	23.3

Lab. No.	Degrees Baume.
36. G-3786—Powell .....	32.8
37. Geol. Report, 2732—Lower Laurel Creek .....	34.1
38. 51656—From Bowling Green, Warren County.....	38.89
39. 51839—Mississippi Oil, Gas & Inv. Co., Bowling Green, Warren County .....	38.5
40. 56426—Dr. L. R. Henry, N. Middletown, Oil from (?) County .....	29.8
41. 56636—Leland Hanks, Lexington, Oil from (?) County	38.7
42. 56641—J. H. Harris, Versailles Oil Co., Lincoln County..	22.2
43. 56667—H. L. Overall, Scottsville, Allen County.....	39.7
44. 56668—Addison Foster, Oil from Johnson County.....	51.6
45. G-3807—John Jackson Farm, Bowling Green, Warren Co.	38.89
46. G-3834—J. B. Winlock, Barren County .....	44.6
47. G-3841—Jordan Farm near Oil City, Barren County.....	39.5
48. G-3844—Pottsville Horizon, Magoffin County .....	22.0
49. G-3851—Drakes Creek, Warren County .....	36.7
50. G-3852—Tom Smith, Barren County .....	35.1

Range 22° to 51.6° Baume in 50 samples.

ALFRED M. PETER, Chief Chemist.

August 11, 1919.

DISTILLATION RECORDS OF KENTUCKY CRUDE OIL

RECORD No. 1. SCOTTSVILLE, ALLEN COUNTY, KY., CRUDE

Initial Boiling Point 300			Gravity Baume 26.0	
Temp. Condenser 80			Maximum Bolling Point 650	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	350	42.8	.....	212
20	425	38.4	3.0	300
30	522	35.5	10.0	350
40	580	33.0	13.0	365
50	620	31.6	15.0	375
60	640	30.6	19.0	400
70	650	30.5	22.0	460
80	.....	.....	26.0	500
90	.....	.....	68.0	650
98	.....	.....	.....	.....
Per Cent Total Recovery			.....	
Loss in Gravity			.....	
32% Bottoms. 15.8 Grav.				

(Signed) W. EXTON.

August 30, 1918.

**RECORD NO. 2. BEATTYVILLE, LEE COUNTY, KY., EASTERN  
GULF OIL CO. CRUDE**

Initial Boiling Point 100 Temp. Condenser 64			Gravity Baume 42.5 Maximum Boiling Point 560	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	202	78.6	12.0	212
20	270	63.0	24.4	300
30	398	54.1	31.0	350
40	438	48.1	32.2	365
50	540	41.3	33.6	375
60	.....	.....	36.6	400
70	.....	.....	42.6	460
80	.....	.....	46.0	500
90	.....	.....	54.0	560
98	.....	.....	.....	.....
Per Cent Total Recovery			.....	
Loss in Gravity			.....	
46% Bottoms. No. Loss.				

(Signed) L. H. LANG.

Oct. 23, 1918.

**RECORD NO. 3. ESTILL COUNTY, KY., CRUDE**

Initial Boiling Point 180			Gravity Baume 34.8		
Temp. Condenser 34			Maximum Boiling Point 89% @ 750		
Per Cent	Temp.	Gravity		Per Cent	Temp.
Off.	"F"	Be.		Off.	"F"
10	260	63.8	Flash @ Temp.	3.0	212
			Chill 0/?		
20	328	55.0		.....	300
30	400	48.5		23.2	350
40	476	41.5	Sulphur	25.6	365
50	550	37.2	Determinations	27.0	375
60	626	33.2	.520%	30.0	400
70	676	29.9	Hamilton Oil	38.0	460
80	730	28.3		44.4	500
90	750	26.6		50.0	550
98	.....	.....		.....	.....
Per Cent Total Recovery					.....
Loss in Gravity					.....
11% Bottoms. No. Loss.					

(Signed) R. F. B.

May 22, 1919.

KENTUCKY OIL AND GAS PRODUCTION

31

RECORD NO. 4. LINCOLN COUNTY, KY., DANIEL BOONE OIL CO.'S CRUDE

Initial Boiling Point 194			Gravity Baume 32.4	
Temp. Condenser 66			Maximum Boiling Point 600	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	230	54.8	.2	212
20	388	49.8	5.2	300
30	454	44.4	14.2	350
40	518	39.9	16.7	365
50	584	36.3	18.4	375
60	600	.....	22.0	400
70	.....	.....	31.8	460
80	.....	.....	38.0	500
90	.....	.....	56.0	600
98	.....	.....	.....	.....
Per Cent Total Recovery			.....	
Loss in Gravity			.....	
44% Bottoms. No. Loss.				

(Signed) L. H. LANG.

Oct. 11, 1918.

RECORD NO. 5. LINCOLN COUNTY, KY., DANIEL BOONE OIL CO., CRUDE

Initial Boiling Point 128			Gravity Baume 37.0	
Temp. Condenser 70			Maximum Boiling Point 650	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	226	69.5	8.2	212
20	282	59.0	22.6	300
30	350	52.8	30.0	350
40	432	45.7	32.4	365
50	514	39.8	33.8	375
60	596	35.8	36.4	400
70	640	33.3	43.6	460
80	650	33.0	49.0	500
90	.....	.....	61.0	600
98	.....	.....	.....	.....
Per Cent Total Recovery				.....
Loss in Gravity				.....
20% Bottoms. No. Loss.				

(Signed) L. H. LANG.

Oct. 8, 1918.

RECORD NO. 2. BEATTYVILLE, LEE COUNTY, KY., EASTERN  
GULF OIL CO. CRUDE

Initial Boiling Point 100			Gravity Baume 42.5	
Temp. Condenser 64			Maximum Boiling Point 560	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	202	78.6	12.0	212
20	270	63.0	24.4	300
30	398	54.1	31.0	350
40	438	48.1	32.2	365
50	540	41.3	33.6	375
60	.....	.....	36.6	400
70	.....	.....	42.6	460
80	.....	.....	46.0	500
90	.....	.....	54.0	560
98	.....	.....	.....	.....
Per Cent Total Recovery				.....
Loss in Gravity				.....
46% Bottoms. No. Loss.				
(Signed) L. H. LANG.				

Oct. 23, 1918.

RECORD NO. 3. ESTILL COUNTY, KY., CRUDE

Initial Boiling Point 180			Gravity Baume 34.8	
Temp. Condenser 34			Maximum Boiling Point 89% @ 750	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	260	63.8	Flash @ Temp.	3.0 212
			Chill 0/?	
20	328	55.0	.....	300
30	400	48.5	23.2	350
40	476	41.5	Sulphur	25.6 365
50	550	37.2	Determinations	27.0 375
60	626	33.2	.520%	30.0 400
70	676	29.9	Hamilton Oil	38.0 460
80	730	28.3		44.4 500
90	750	26.6		50.0 550
98	.....	.....	.....	.....
Per Cent Total Recovery				.....
Loss in Gravity				.....
11% Bottoms. No. Loss.				
(Signed) R. F. B.				

May 22, 1919.

RECORD NO. 4. LINCOLN COUNTY, KY., DANIEL BOONE OIL CO.'S CRUDE

Initial Boiling Point 194			Gravity Baume 32.4	
Temp. Condenser 66			Maximum Boiling Point 600	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	230	54.8	.2	212
20	388	49.8	5.2	300
30	454	44.4	14.2	350
40	518	39.9	16.7	365
50	584	36.3	18.4	375
60	600	.....	22.0	400
70	.....	.....	31.8	460
80	.....	.....	38.0	500
90	.....	.....	56.0	600
98	.....	.....	.....	.....
Per Cent Total Recovery				.....
Loss in Gravity				.....
44% Bottoms. No. Loss.				
(Signed) L. H. LANG.				

Oct. 11, 1918.

RECORD NO. 5. LINCOLN COUNTY, KY., DANIEL BOONE OIL CO., CRUDE

Initial Boiling Point 128			Gravity Baume 37.0	
Temp. Condenser 70			Maximum Boiling Point 650	
Per Cent	Temp.	Gravity	Per Cent	Temp.
Off.	"F"	Be.	Off.	"F"
10	226	69.5	8.2	212
20	282	59.0	22.6	300
30	350	52.8	30.0	350
40	432	45.7	32.4	365
50	514	39.8	33.8	375
60	596	35.8	36.4	400
70	640	33.3	43.6	460
80	650	33.0	49.0	500
90	.....	.....	61.0	600
98	.....	.....	.....	.....
Per Cent Total Recovery				.....
Loss in Gravity				.....
20% Bottoms. No. Loss.				
(Signed) L. H. LANG.				

Oct. 8, 1918.

ANALYSES OF KENTUCKY CRUDE OIL BY STATE CHEMIST  
ANALYSIS No. 1.

Laboratory No. G-3851.—Petroleum labeled “Green Oil Waverly Stray horizon, above Black Shale, on Drake’s Creek, Warren County, Ky. V. Humbrecht, lessee. Depth 115 ft. Collected by W. R. Jillson, Aug. 2, 1919.” Sample a rather thin, green oil, dark brown by transmitted light.

Specific gravity by hydrometer at 60° F., 0.840=36.7° Baume.	
Distilled below 150° F. (gasoline fraction).....	20.0%
Distilled between 300 and 572° F. (burning oil fraction).....	36.5%
Residue of thick, brown oil .....	42.8%
Loss on distillation .....	0.7%
<hr/>	
Total .....	100.0%

Percentage by volume.  
(Analysis by A. M. Peter.)  
Aug. 11, 1919. ALFRED M. PETER, Chief Chemist.

ANALYSIS No. 2.

Laboratory No. G-3844.—Black oil, Pottsville horizon, Magoffin County, Ky., Short Fork of Burning Fork of Licking River. Collected by W. R. Jillson, January 2, 1918. Sample a thick, dark brown oil.

Specific gravity at 60° F., .921 or 22° B.

	Per Cent by Volume
Distillate below 150° C. (302° F.) gasoline fraction.....	trace
Distillate from 150 to 300° C. (302-572° F.) burning oil frac- tion .....	32.
Thin tar, by difference .....	68.
<hr/>	
	100.

On continued heating, until coke began to form in the flask, 84.5 per cent. of distillate was obtained.  
Analysis by A. M. Peter and S. D. Averitt.  
June 3, 1919. ALFRED M. PETER, Chief Chemist.



**AUTOMATIC REFINERY STOKERS.**  
The view shows a battery of twenty mechanical stokers in the "Riverside Plant" of the Standard Oil Refinery Company, located at Louisville, Kentucky. Photo by W. H. Jilson, April 20, 1919.

## ANALYSIS No. 3.

Laboratory No. G-3857—Petroleum labeled “Crude oil produced by the Great Central Company, Prestonsburg, from a well at the mouth of Middle Creek, Floyd County, Ky. Collected by W. R. Jillson, October 29, 1918. From the Weir sand, 1425 ft.”

Sample, a thick, green oil.

Specific gravity at 60° F., 0.877, equivalent to 29.6° Baume.

Distilled below 150° C. (302° F.) .....	none
Distilled between 150° and 300° C. (302-572° F.).....	32.8%
Thick, oily residue .....	66.7%

Total .....	99.5%
-------------	-------

Began to distill at 160° C. (320° F.).

ALFRED M. PETER.  
Chief Chemist.

(Analysis by A. M. Peter.)  
Sept. 4, 1919.

## ANALYSIS No. 4.

Laboratory No. G-3856—Petroleum labeled “Green oil from the Cumberland Pine Line at Ivyton, Magoffin County, Ky. Collected by W. R. Jillson, 1918. (Specimen was exposed to air.)”

Sample, a thin, green oil.

Specific gravity at 60° F., 0.835, equivalent to 37.7° Baume.

Distilled below 150° C (302° F.).....	20.0% (Gasoline fraction)
Distilled between 150° and 300° C. (302-572° F.).....	31.0% (Burning oil fraction)
Thick, oily residue .....	49.0%

Total .....	100.0%
-------------	--------

Began to distill at 65° C. (149° F.)

ALFRED M. PETER, Chief Chemist.

(Analysis by A. M. Peter.)  
Sept. 4, 1919.

## ANALYSIS No. 5.

Laboratory No. G-3855—Petroleum, labeled “Green oil from the Major wells, west of Leitchfield, Grayson County, Kentucky, Carl Dresser, operator. Collected by

W. R. Jillson, August 26, 1919. Oil horizon a Waverly 'stray sand.' '' Sample from open tank and probably old pumping in part.

Sample, a rather thin, slightly greenish oil, dark brown by transmitted light.

Specific gravity at 60° F., 0.8785, equivalent to 29.4° Baume.

Distilled below 150° C. (302° F.)..... 7.4% (Gasoline fraction)

Distilled between 150° and 300° C.

(302-572° F.) ..... 33.5% (Burning oil fraction)

Tarry residue ..... 59.0%

---

Total ..... 99.9%

Began to distill at 85° C. (185° F.).

ALFRED M. PETER, Chief Chemist.

(Analysis by A. M. Peter.)

Sept. 4, 1919.

#### ANALYSIS No. 6.

Laboratory No. G-3854—Petroleum, labeled "Green oil from S. R. Moffit well, west of Leitchfield, Grayson County, Ky., Carl Dresser, lessee. Collected by W. R. Jillson, August 26, 1919. Oil horizon a Waverly 'stray sand.' '' Sample had been exposed to air a few days.

Sample a thick, slightly greenish oil, very dark brown by transmitted light.

Specific gravity at 60° F., 0.870, equivalent to 30.9° Baume.

Distilled below 150° C. (302° F.)..... 3.8% (gasoline fraction)

Distilled between 150° and 300° C.

(302-572° F.) ..... 34.5% (Burning oil fraction)

Heavy, tarry residue ..... 61.5%

---

Total ..... 99.8%

Began to distill at 116° C. (241° F.)

ALFRED M. PETER, Chief Chemist.

(Analysis by A. M. Peter.)

Sept. 4, 1919.

#### ANALYSIS No. 7.

Laboratory No. G-3861—Petroleum labeled "Lessor (Dr.) Hunter. Lessee, Duplex Oil Co., 3 miles west of Bowling Green, Warren County, Ky. 960 feet, total

depth." Received from W. R. Jillson, State Geologist, September 15, 1919.

#### ANALYSIS.

Specific gravity 0.834 at 60° F., equivalent to 37.9° B.	
Distilled below 150° C. (302° F.).....	20.2% (Gasoline fraction)
Distilled from 150° to 300° C. (302-572° F.) .....	32.0% (Burning oil fraction)
Thick, brown tar .....	45.0%
Loss in analysis .....	2.8%
<hr/>	
100.0%	

The oil began to distill at 65° C. (149° F.)

ALFRED M. PETER, Chief Chemist

(Analysis by A. M. Peter.)

Sept. 19, 1919.

#### ANALYSIS No. 8.

Laboratory No. G-3865—Petroleum labeled "Fresh, green oil, Joe B. Sumpter, No. 1, Mrs. Gray, lessee, 1/2 mile W. of Bowling Green, Warren Co., Ky. Oil at 880-900 ft., total depth 920 ft. Oil horizon, Niagara. Collected by W. R. Jillson, Sept. 14, 1919." Received from W. R. Jillson, State Geologist, September 15, 1919.

#### ANALYSIS.

Specific gravity at 60° F., 0.865, equivalent to 31.9° B.	
Distilled below 150° C. (302° F.).....	9.3% (Gasoline fraction)
Distilled from 150° to 300° C. (302-572° F.) .....	37.5% (Burning oil fraction)
Tarry residue .....	52.5%
Loss in analysis .....	0.7%
<hr/>	
100.0%	

The oil began to distill about 80° C. (176° F.)

ALFRED M. PETER, Chief Chemist.

(Analysis by A. M. Peter.)

Sept. 19, 1919.

#### ANALYSIS No. 9.

Laboratory No. G-3864—Petroleum, labeled "(d) Green oil, Maj. R. W. Covington, No. 1, 355 ft. above

shale, 1/2 mile southeast of Bowling Green, Warren Co., Ky. Sept. 15, 1919." Received from W. R. Jillson, State Geologist, September 15, 1919.

ANALYSIS.

Specific gravity at 60° F., 0.854, equivalent to 33.9° B.

Distilled below 150° C. (302° F.)..... 13.0% (Gasoline fraction)

Distilled from 150° to 300° C.

(302-572° F.) ..... 36.5% (Burning oil fraction)

Tarry residue ..... 50.0%

Loss in analysis ..... 0.5%

---

100.0%

The oil began to distill at 75° C. (167° F.)

ALFRED M. PETER, Chief Chemist.

(Analysis by A. M. Peter.)

Sept. 19, 1919.

ANALYSIS No. 10.

Laboratory No. G-3863—Petroleum labeled "Green oil, open steel tank. Horace Bohon, No. 1. A. Goldstein, lessee. 840 ft. deep, below shale. 1 mile E. of Bowling Green, Warren County, Ky. Collected by W. R. Jillson, Sept. 14, 1919." Received from W. R. Jillson, State Geologist, September 15, 1919.

ANALYSIS.

Specific gravity at 60° F., 0.856, equivalent to 33.6° B.

Distilled below 150° C. (302° F.)..... 13.0% (Gasoline fraction)

Distilled from 150° to 300° C.

(302-572° F.) ..... 36.5% (Burning oil fraction)

Tarry residue and loss by difference..... 50.5%

---

100.0%

The oil began to distill at 70° C. (158° F.)

ALFRED M. PETER, Chief Chemist.

(Analysis by A. M. Peter.)

Sept. 19, 1919.

ANALYSIS No. 11.

Laboratory No. G-3862—Petroleum labeled "Green oil from J. A. Hamilton & Co., Wayne O'Neil, lessee, 1/2 mile N. E. of Bowling Green, Warren County, Ky. Oil

horizon, Onondaga and Niagara limestones. Depth 850 ft. Collected by W. R. Jillson, September 14, 1919." Received from W. R. Jillson, State Geologist, September 15, 1919.

#### ANALYSIS.

Specific gravity at 60° F., 0.856, equivalent to 33.6° B.

Distilled below 150° C. (302° F.)..... 14.5% (Gasoline fraction)

Distilled from 150° to 300° C.

(302-572° F.) ..... 34.5% (Burning oil fraction)

Tarry residue ..... 50.5%

Loss in analysis ..... .5%

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100.0%

The oil began to distill at 65° C. (149° F.)

ALFRED M. PETER, Chief Chemist.

(Analysis by A. M. Peter.)

Sept. 19, 1919.

#### KENTUCKY NATURAL GAS

The natural gas production of Kentucky is but partially commercialized for lack of extension pipe lines from the various developed gas fields to the trunk pipe lines. Crossing the State from east to west are two main trunk pipe lines. One of these, the Kentucky Pipe Line—a twelve-inch line—extends from Inez, in Martin County, to the city of Louisville which it serves through the Louisville Gas and Electric Company. This line is supposed to carry twelve million cubic feet of natural gas daily, but probably, as a matter of fact, carries somewhat less. The line was laid and connected in 1907 and the first gas carried by it came from both the Martin County field and West Virginia sources. However, during the last twelve years, the Martin County field has shown considerable and rapid decline in both rock pressure and volume and for this reason an increasingly larger supply has been taken from the West Virginia compressor Station at Kermit on the Tug Fork of the Big Sandy River.



NATURAL GAS COMPRESSION STATION AT KERMIT, W. VA.

This important transportation station is located at Kermit just across the Tug Fork of the Big Sandy River, from Martin County. It is owned and operated by the United Fuel Gas Company. Photo by A. M. Miller.

#### THE CENTRAL KENTUCKY NATURAL GAS PIPE LINE

The second of these large trunk gas lines, that of the Central Kentucky Natural Gas Pipe Line Company, extends from Inez, in Martin County, to Lexington and, by extension, to Frankfort. This gas has within the last eight months connected, as a source of additional supply from eastern Kentucky, the newly developed gas fields of Paint Creek in Johnson and Magoffin Counties, and Laurel Creek of Johnson and Lawrence Counties. The Paint Creek extension is four-inch tubing. The Laurel Creek extension is six-inch tubing. Compressors are already working on the Laurel Creek line and will soon be in operation on the Paint Creek line. It is estimated that the Central Kentucky Natural Gas Company is now taking between two and three million cubic feet volume of gas from these two new fields combined. This amount does not in any, except a small way, indicate what the capacity of these two gas structures will be when they are fully developed and connected to the compressor stations. Further to the west this main trunk gas line connects with the Meniffee gas field where a large com-

pressor station is located. This pipe line serves, besides the larger cities of Frankfort and Lexington, the smaller cities of Mt. Sterling, Paintsville, Versailles, Midway, Winchester and Paris.

The Central Kentucky Natural Gas Pipe Line Company's line from Inez to Lexington is 10 inches. From Lexington the line is 8-inch to the Versailles "cut in" and from there on 6 inches to Frankfort. This line from Lexington to Frankfort and Versailles is owned and operated by the Frankfort Natural Gas Company. Between six and nine million cubic feet volume of gas is transported daily by the Central Kentucky Natural Gas main trunk pipe line. Aside from the two or three million cubic feet of gas now being taken by this company from the new Paint Creek and Laurel Creek fields in Johnson, Magoffin and Lawrence Counties, the greater part of the gas comes from West Virginia, through the Kermit compressor station. The Menifee field, once the principal source of supply of this pipe line, is now a very small contributor or simply a ready reserve supply. The Menifee-to-Lexington line was first installed in 1905 and was continued further eastward to Inez in 1912. The Paris extension was made in 1913 and the Frankfort extension was connected up in the fall of 1915.

VALUE OF PRODUCTION OF NATURAL GAS IN KENTUCKY  
FROM 1889 TO 1919.\*

1889	.....	\$2,580
1890	.....	30,000
1891	.....	38,993
1892	.....	43,175
1893	.....	68,500
1894	.....	89,200
1895	.....	98,700
1896	.....	99,000
1897	.....	90,000
1898	.....	103,133
1899	.....	125,745
1900	.....	286,243
1901	.....	270,871
1902	.....	365,611
1903	.....	390,601
1904	.....	322,404

\*Mineral Resources of United States. U. S. G. S.

1905 .....	\$237,590
1906 .....	287,501
1907 .....	380,176
1908 .....	424,271
1909 .....	485,192
1910 .....	456,293
1911 .....	407,689
1912 .....	522,455
1913 .....	509,846
1914 .....	490,875
1915 .....	614,998
1916 .....	752,635
1917 (estimated) .....	902,635
1918 (estimated) .....	1,052,000
1919 (estimated) .....	1,275,000

### GAS ANALYSIS

No. 1.—Sample taken from Jason Boggs, No. 1, Cain's Creek, Lawrence County, Ky., June 1, 1917. Well drilled by Clinton Oil and Gas Co. Analysis submitted by H. E. Holt, Huntington, W. Va.

Specific gravity (H=1) .....	10.16
Carbon dioxide .....	.14%
Oxygen .....	.36%
Light naphtha per 1,000 cu. ft. ....	1.10 gal.
Probable recovery of light naphtha per 1,000 cu. ft. of gas by compression .....	none

(Signed) H. H. CRAVEN, Chief Chemist,

Pittsburg Testing Laboratory, Pittsburg, Pa.

### GEOGRAPHIC LOCATION OF KENTUCKY NATURAL GAS

The greatest natural gas province of Kentucky will always be the eastern portion of the State. Some gas production has been secured at a number of widely distributed points and some of the southern-central counties have materially increased their gas development during the past year. Yet none of this newer gas area promises anything like the established territories of eastern Kentucky. The facts in the case are these: besides Menifee and Martin there are at least a full dozen or fifteen counties in the eastern coal field which with careful scientific and systematic development may be looked upon as a great gas reserve. It is an assured fact that sufficient

natural gas for conserved domestic consumption in Kentucky may be secured from this now partly developed group of gas fields for a great many years.

Since it is admitted by both the practical and the theoretical oil and gas producer that the drill is the ultimate agent in determining the occurrence of oil or gas in commercial quantity in the deep rocks, it will not be difficult for the layman to accept the facts presented by completed prospecting drillings in various parts of eastern Kentucky. Without going into a length of tedious detail, which could scarcely add anything to the accuracy of this statement, it is a demonstrable fact that enough large gas wells have been drilled in Morgan, Lawrence, Elliott, Johnson, Magoffin, Floyd, Pike, Breathitt, Knott, Perry, Owsley, Wolfe and Knox Counties to demonstrate beyond doubt the justice of the claims of these above named counties to widespread recognition as a great untapped commercial natural gas reserve. In these counties absolute figures based upon accurate measurements will show at the present time not less, and probably more, than 40,000,000 cubic feet of natural gas in open flow at the tubing head. Eight gas structures alone in eastern Kentucky taken together show a measured open flow volume of 28,230,000 cubic feet of natural gas. Out of this large amount about four million feet have just recently been taken over by the Central Kentucky Natural Gas Co. Considered as a whole, however, of this forty million cubic feet "index" gas probably not one-tenth is serving any commercial purpose. The most of it remains "shut in" and unused, for the operators who drilled it in were searching for crude oil or petroleum and had no use for the gas. To what commercial maximum volume this "index" 40,000,000 cubic feet may be increased it is at present impossible to say, but the figures will be many times greater than the "index" volume. The larger part of this gas is located at some distance from any public service trunk pipe line, and therefore is at the present time of slight commercial importance except as an "index" to producing possibilities.

**QUANTITATIVE EVALUATION OF TEN PROVED NATURAL GAS STRUCTURES IN EASTERN KENTUCKY IN  
THE COUNTIES OF FLOYD, KNOTT, JOHNSON, MAGOFFIN AND MORGAN.**

No.	Name of Structure.	Producing Sand	Present Open Flow. By Gauge.	Estimated Possible Open Flow.	Approx. Depth Below Surface.
1	Yellow Mountain Anticline, Knott County.	Big Lime	4,680,000	20,000,000	1,630
2	Beaver Creek Anticline, Floyd County.	Maxon-Berea Big Injun	8,700,000	35,000,000	850-2,000
3	Steel's Creek Dome, Floyd County.	Maxon	2,800,000	8,000,000	900
4	Prestonsburg Anticline, Floyd County.	Big Injun Wier-Berea	600,000	2,000,000	1,428
5	Bull Creek Anticline, Floyd County.	Big Injun	1,060,000	5,000,000	1,300
6	Ivyton Dome Magoffin-Johnson	Pottsville Wier	500,000	3,000,000	350
7	Rockhouse Anticline, Magoffin County.	Wier Corniferous	-----	7,000,000	1,600
8	Paint Creek Dome, Magoffin-Johnson	Wier Corniferous	10,000,000	15,000,000	700
9	Laurel Creek Dome, Johnson County	Big Injun Wier Berea	6,000,000	15,000,000	700-1,600
10	White Oak Anticline, Magoffin-Johnson.	Corniferous Big Injun Wier-Berea	-----	10,000,000	600 1,500
Total present Vol. open flow cu ft.			34,230,000		
Total estimated reasonably possible volume open flow in cubic feet				121,000,000	

\*NOTE.—The data presented in the above table is taken from a private report on natural gas of Eastern Kentucky prepared by the author for the city of Louisville in December, 1918. A few minor corrections have been made to bring the production figures up to date.

### CHAPTER III.

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## THE ORIGIN OF PETROLEUM AND NATURAL GAS.

Historical references to petroleum and natural gas may be found among the earliest written records of man. There is probably no doubt but that the earliest nations knew and used these two now famous natural hydrocarbons, tho little is to be found in written records concerning them. Despite this early knowledge, little progress has been made by man, even to the present day, when these two substances have come to take such an important economic value, in determining their ultimate source and origin. Altho we know a great deal about their chemical constituency, their interrelations and commercial grades, we are not much wiser concerning the source of petroleum and natural gas than were our very earliest ancestors. Many suggestions and hypotheses have been advanced by various scientists, around whom have been developed schools of ardent advocates, but up to the present time no one explanation of source has been universally accepted, nor have claims passed beyond the stage of theory. As a matter of fact, most of these views of origin or source are based upon chemical relations developed in laboratories in a small sort of way during a comparatively short time, and are therefore not directly comparable to the means or the scale or the time employed for the production of these hydrocarbons in the natural way. It is, therefore, perhaps wise to simply present the principal facts and theories of this subject and allow the reader to form, if he wishes, his own conclusion.

The theories of source or origin of petroleum and natural gas may be generally separated into two divisions:

- (1) Those views which attribute an inorganic origin.
- (2) Those attributing organic origin.

## THE INORGANIC THEORY.

It may be well to state at the outset that the promulgators of this, the inorganic theory of the origin of petroleum and natural gas, were for the most part men who were chemists and who actually knew very little of the geologic conditions which surround the occurrence of oil and gas in the natural condition in the earth's crust. As far as the writer is informed, the men who are advocating this, the inorganic theory, depend entirely upon chemical proofs and chemical hypotheses. Very few, if any, oil and gas geologists have ever endorsed this explanation of origin, and it would seem that this fact alone must serve to condemn the theory to some extent. Had there been any indications of its application in a practical way, it seems reasonable to suppose that such application would have been noted and developed at least theoretically long ago.

The two promulgators of the inorganic theory may be said to be the distinguished French chemist, Berthelot, and the brilliant Russian chemist, Mendeljeff. Berthelot did his work and advanced his ideas in 1866. He assumed that the alkali metals, potassium and sodium, existing uncombined and at high temperatures in the interior of the earth, produced a series of hydrocarbons whenever underground waters, carrying carbon in solution, found access to them. His idea was that the production of petroleum and natural gas would continuously take place at from moderate to great depths within the earth's crust, in the entire absence of organic substances. Mendeljeff assumed the interior of the earth to be composed of great masses of metallic carbides and iron at a high temperature. His theory conceived the production of metal oxides and hydrocarbons upon the contact of water with these aforementioned substances. His theory, like Berthelot's, was one which allowed the assumption of a more or less continuous small production of petroleum and natural gas as long as the supply of metallic carbide was available.

Both of these theories presupposed the continual generation of the hydrocarbons, constituting the petroleum and natural gas, as long as the source substances

remained, a fact which has never been substantiated by the history of producing fields. Advocates of the inorganic theory today claim that the generation of these hydrocarbons requires a much greater length of time than that which has been allotted by the practical observer of oil and gas fields. They point, with a measure of pride, to the somewhat puzzling conditions of occurrence of petroleum and natural gas in Mexico and portions of the Gulf Coastal Plain of the United States. While it is true that in these localities of oil and gas there are igneous formations, hot water, sulphur and salt, and while it is also a fact that we do not today thoroughly understand the full geologic conditions of the actual details of their occurrence in these fields, it may be pointed out that the reference to these fields as a proof of the inorganic theory is entirely unacceptable for world-wide conditions do not parallel this cited mode of occurrence.

#### THE ORGANIC THEORY.

Many theories have been advanced by both chemists and geologists to account for the origin and source of petroleum and natural gas on an organic basis. Perhaps one of the first men to make this suggestion was von Buch, who in 1803 offered the suggestion that the bituminous content of the Liassic shales of Wurtemberg came from an animal and vegetable source. On the basis of general conditions, it is assumed that since most of the petroleum of the world is derived from marine sediments, the organisms producing hydrocarbons are also of marine origin. A number of chemical tests have been made by chemists of ability, which go to show the possibility of this mode of origin.

In 1865 Warren and Storer, in distilling a fish oil, showed that it could be broken up into hydrocarbon constituents parallel to those of petroleum and natural gas. Up to the present, the chemical side of the organic theory has come thru with its case clear. Geologists for the most part have favored this theory, generally because they have found the oil associated in sediments which contain large numbers of marine fossils. Unfortunately, however, no large degree of real or positive proof has

ever been obtained by the geologists to show conclusively that this was the method of occurrence.

In the Appalachian oil field of the eastern United States, of which Kentucky forms the southwest portion, the oil and gas sands are shown imbedded within large masses of shale. This is especially true in the Devonian System, but is also the case in the Mississippian and the Pennsylvanian Systems. The question arises, if the oil found its source in the shales, how did it get into the sands or the limestone imbedded within the shale? This will be settled in another place. The fact remains that the geologists and chemists have proved that the shales do at the present time contain large amounts of undistilled (thru natural processes) hydrocarbons, and whatever may have become of the myriad of fossiliferous tests or casts of the producing organisms really makes very little difference.

However, if concrete evidence is desired, at least one admirable instance of the occurrence of oil in extremely fossiliferous bodies may be cited. In Southern California the oil occurs in a series of diatomaceous shales of from 1,000 to 2,500 feet in thickness. These diatomaceous shales do not now contain oil, but the intervening sandstones, acting as reservoirs for the accumulated petroleums, do. In this field, at least, the association of the oil with these diatomaceous formations has been so clearly interpreted and explained that it is now serving as a reliable guide in the location of new oil and gas fields. While this particular occurrence may be looked upon as a practical proof of the organic animal theory of origin, at least for this particular field, it may not be too broad a suggestion to refer the same possibility to the great oil shales of Colorado and Utah and some of the other western states. It may, however, be noted that proof as definite as that found in Lower California is still lacking for these other localities.

A recent renewal of interest in the optical properties of petroleum has definitely shown that the rotation of the polarized ray which is produced by petroleum is parallel to, if not exactly the same as that of cholesterol from animal fats and phytosterol from vegetable fats. It is now generally agreed that the optical activity of petroleum is due to these two substances, cholesterol and phyto-

sterol. This final and rather conclusive evidence leads the modern observer to assume that the great majority of mineral oils and gases are derived during long periods of time and at rather low temperatures from the decomposition of the fatty substances of plants and animals. Under such an hypothesis, the nitrogenous properties of both the plants and the animals would automatically be removed by the action of bacteria soon after the death of the organisms. While it may be supposed that the terrestrial fauna and flora may have contributed somewhat to the origin of petroleum and natural gas, it must, on the basis of the actual sources of these hydrocarbons, be assumed that the greatest agency of formation has been marine life, animal and vegetable.

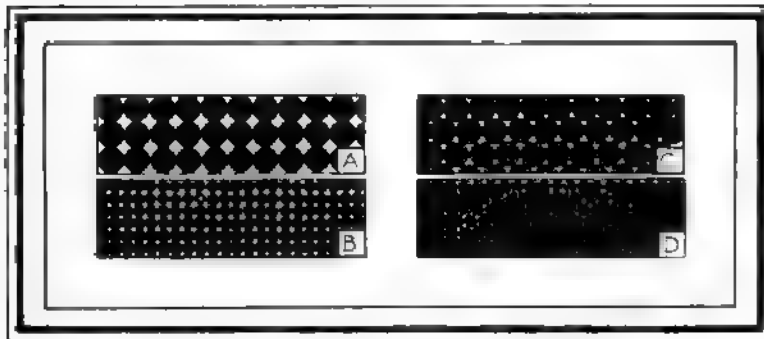
To sum up then: (a) The evidence now afforded seems to favor the animal origin of petroleum and natural gas. (b) It is undoubtedly true that the marine plants have contributed a large portion of the fatty or oily material. (c) Geologic and optical proofs and evidences are, for the most part, decidedly opposed to the inorganic origin of petroleum, but this does not preclude the idea that there may be some relation between the igneous bodies of some of the oil fields and the large accumulations of petroleum and natural gas associated with them.

#### MOVEMENT OF OIL THRU THE ROCKS, AND CONDITIONS OF ACCUMULATION.

From the standpoint of a practical producer, it is somewhat immaterial as to just what has been the actual source of formation of the oil and gas hydrocarbons. All competent writers on the subject are agreed that whatever the source may have been, the oils are not now always found in the same place in the rocks in which they were originally assembled. This statement presupposes migration of both petroleum and natural gas, a very demonstrable fact. Since oil and gas have moved from their original positions, it is of importance to the practical man to understand the conditions necessary for such movement. He must be able to interpret the specific conditions in the geologic formations which have brought about the migration and the accumulation into oil and gas

pools. As a general thing, one should understand that migration has of course preceded accumulation.

There are three forces which are generally considered effective under most conditions in producing the migration of oil and gas in underground sedimentary strata. These are: (a) gravity, (b) capillary attraction, (c) difference in specific gravity of gas, oil and water. Let us



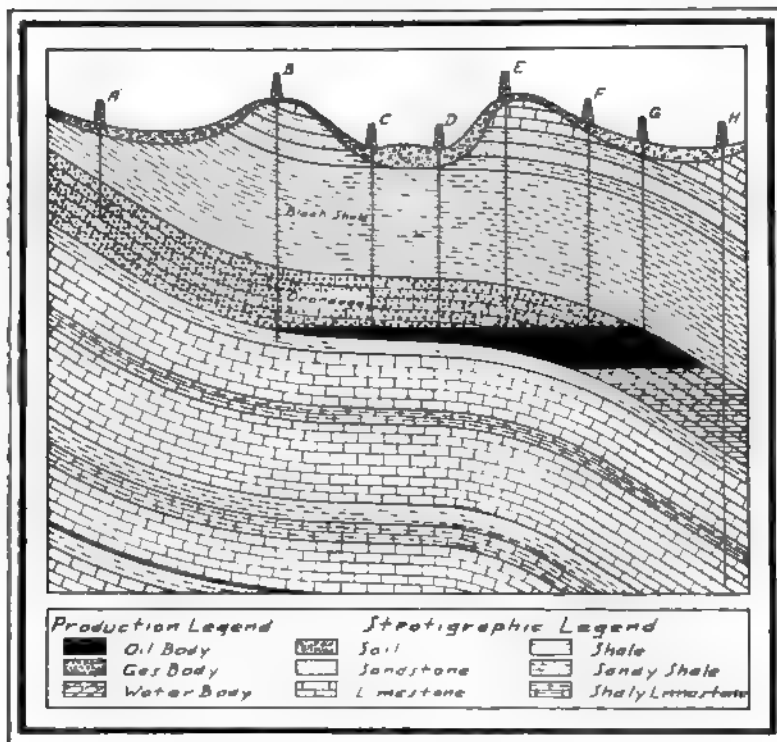
DIAGRAMS ILLUSTRATING THEORETICAL POROSITY

A—Maximum pore space, large spheres; B—Maximum pore space, small spheres; C—Minimum pore space, large spheres; D—Minimum pore space, small spheres.

take these up separately. Oil and gas, in the rocks of the earth's crust are, as we might suppose, affected by the force of gravity like all other substances. But as the force of gravity on oil and gas in a greatly disseminated condition may be understood to be very weak, it must be assumed that movement could only be brought about by this force acting separately and through a long period of time. The lithologic conditions of the containing strata would also necessarily be somewhat special in character, that is, dry and porous. Under such conditions, the migration of oil, obeying the law of gravity, would be toward the center of the earth, and the migration of gas, because of its extreme lightness, if for no other reason, would be chiefly in the opposite direction.

Because of the fact that dry, open strata, in which petroleums were originally contained, are probably not widely extensive throughout the earth, it may be assumed with a considerable degree of certainty, that gravitation operating separately has not been very

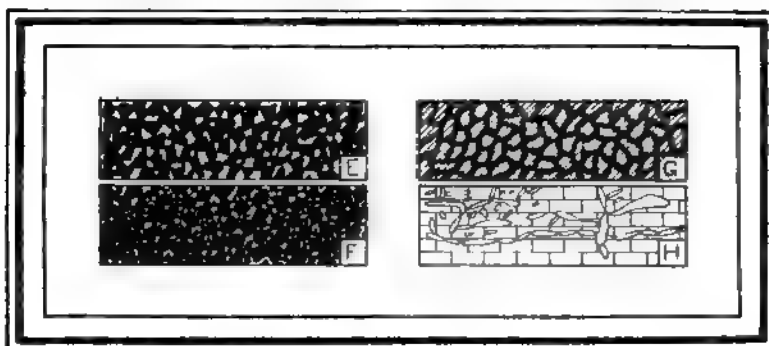
important as a factor in the movement of petroleum and natural gas. The second of the forces tending to produce migration, capillary attraction, is considered to have been and to be much greater than the power of gravity. Many small experiments could be cited to substantiate



DIAGRAMMATIC SECTION OF A TERRACE STRUCTURE  
Insufficient water and low porosity are assumed.

this statement. However, capillary attraction, like gravity, will operate only, to any marked extent, in rocks of a special lithologic character, that is, such rocks as have a low degree of porosity expressed thru a large number of minute pores and interspaces and such rocks as are essentially dry. Since, however, capillary attraction is somewhat nullified by the presence of water, we again find that the amount of petroleum and natural gases which has been moved by this force, acting separately, is, probably, relatively rather small.

The last named of the principal forces influencing the migration of petroleum and natural gas—the difference of specific gravity of gas, oil and water—is perhaps the greatest, most widespread and most universally important factor operating in this connection. This is read-



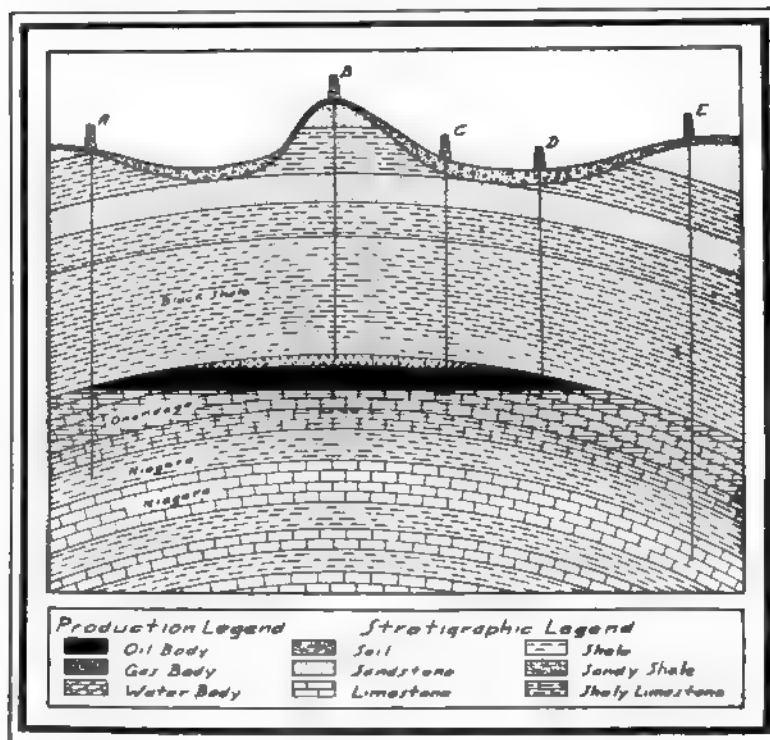
DIAGRAMS ILLUSTRATING ACTUAL POROSITY.

E—Maximum pore space, large sand grains; F Maximum pore space, small sand grains; G—Lack of pore space in sandstone with tightly cemented sand grains; H Reproduction of actual conditions of small interlocking cavities in the Onondaga (Corniferous) limestone as found in the Estill-Lee-Powell-Wolfe, and the Allen-Barren-Warren Fields. This last kind of porosity may be due to either solution or dolomitization or both.

ily understood to be the case, because it is now known thru a great volume of experimental drilling information that the dry rock of high or low porosity is the very special rather than the general case. Since most strata containing petroleum and natural gas are water-filled, in part at least, we now come to a consideration of those principles of movement which must base themselves upon the relative specific gravities of the three substances considered, gas, oil and water.

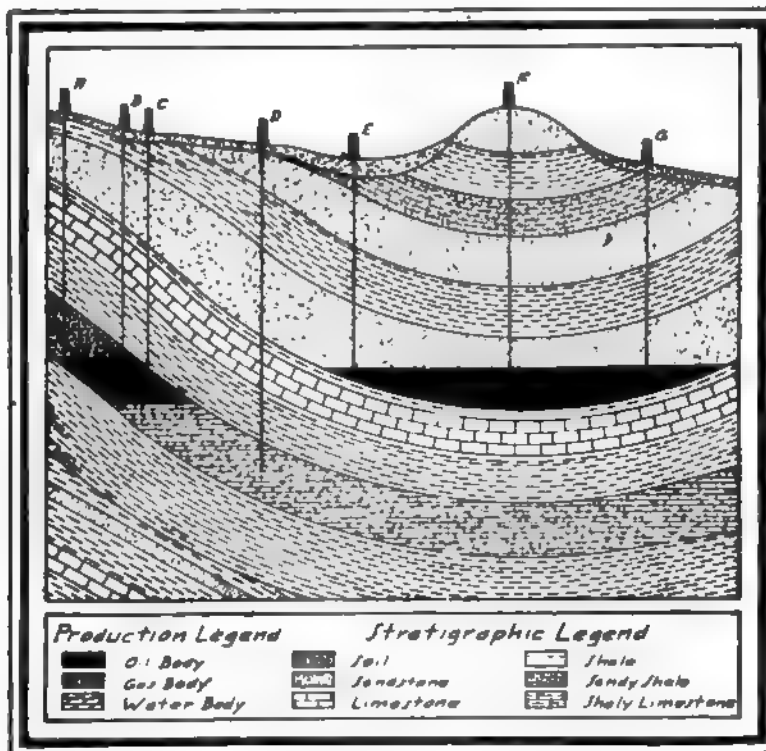
In the most simple condition, that of an undeformed (essentially flat) horizon, the water would be found occupying the lower part of the strata. Resting directly upon the water-saturated portion would be found a layer of oil, and upon this, filling completely the remaining space, the stratum would be the natural gas. Under such conditions, the movement of the oil and gas would be relatively small since it would be within the thickness

of the stratum itself and, were the movement not to proceed any further than this, it is very probable there would be very few accumulations of oil and gas in strictly commercial quantities. It therefore becomes necessary to consider the interpretation of widespread specialized conditions of structure, different from the normal and original, and such structures will of course be the folds in the rock series. Along the belts of such folds, then, the movement will at once be seen to have been greatly increased, that is, the tendency will have been for the entire water content to arrange itself in the lowest position of the structure of any of the porous formations. This would, of course, be the lowest part of the fold. In moving down to this location, the waters must necessarily compete with the oil and gas indigenous at each



**DIAGRAMMATIC SECTION OF DOME OR ANTICLINAL STRUCTURE**  
Adequate water and high porosity are assumed.

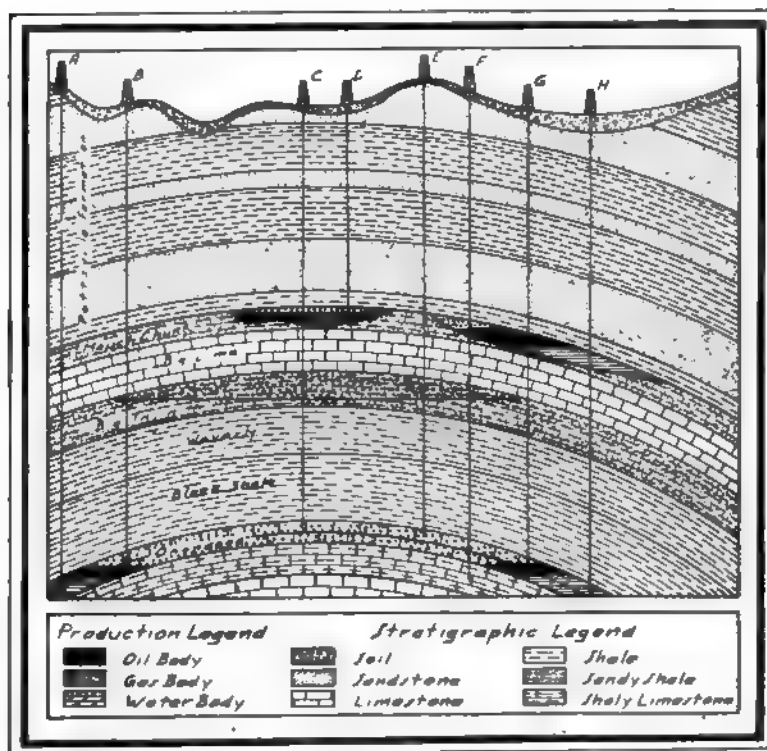
and every point of contact, and should therefore be considered generally successful in displacing them and moving them to higher locations on the folded structure. The position of the water and the oil and gas would then be entirely dependent upon the particular quantities of oil and gas and water contained in the folded strata. With the water conditions prolific, the oil might be expected to be found relatively high on the structure, if not at the very highest place, and the gas above it confined into a very small space and under very great pressure. Were there to be but a small amount of water in the strata, we might expect to find the oil belt lying much further down on the fold, again at the top of the water, and the interven-



#### DIAGRAMMATIC SECTION OF A SYNCLINAL STRUCTURE

The upper sands are assumed to be essentially without water, the lower ones partly saturated. Equivalent degrees of porosity obtain.

ing space, relatively great perhaps, tending to become entirely filled with gas under a rather high regular pressure. In case of a practical absence of water in the oil production horizon, the oil belt would be—theoretically at least—at the lowest point of the structure or in the syncline proper. Gas under relatively little pressure would be found at all higher points. To such a sequence of conditions there may be added the special conditions of channel deposits such as are widespread in Kentucky. These deposits filling the winding courses of old semi-marine or other currents are generally of an elongated and rather narrow configuration. In this State one of the best examples of this sort of deposit is found at the line of unconformity of the Mauch Chunk and the overlying



#### DIAGRAMMATIC SECTION IN EASTERN KENTUCKY

The structure is anticlinal and symmetrical, but the location of the oil, gas, and water is different in the Mauch Chunk and Onondaga.

Pottsville. At this stratigraphic level the irregularity is very great especially in the eastern and western Kentucky coal fields.

Sand deposits are generally found filling old channels in shales and limes, and when these deposits are slightly tilted, as they almost invariably are, it will be seen that the extension of the "pay" sand thereby developed will be one that must necessarily be irregular beyond description. This character of oil and gas sand is the one most difficult for geologists and oil operators to interpret. It produces what is commonly designated as a "Stray" and when production is definitely sought in such a horizon an extreme amount of hazard is introduced into prospecting. Many times definite channel deposits are referred to as lenses because of the lack of knowledge of their true character. There is no way that a channel deposit "pay" sand can be worked out accurately by using surface geology.

In Kentucky the principal oil producing horizon to date has been the Onondaga or Corniferous limestone, which in many places is quite porous and thereby different from most limestones under cover. Since the "pay" horizon is a limestone, special conditions are introduced respecting accumulation that do not obtain in the typical silicious "pay" sand. The oil and gas that occur in the Onondaga limestone may not be regarded as entirely indigenous to this formation. It is practically a certainty that a great deal of it comes from other and lower horizons. These are in Silurian and possibly the uppermost Ordovician. The black shale of the Devonian, which overlies the Onondaga limestone, must be excluded as the indigenous source of the principal part of the oil found in the Onondaga limestone for many reasons, good reasons which have already been advanced.\* Minor faulting, fissuring, and jointing are a number of the factors in the Devonian and underlying limestones that undoubtedly have contributed, without surface indication, to the location of many of the most important oil pools in the Onondaga limestone of Kentucky.

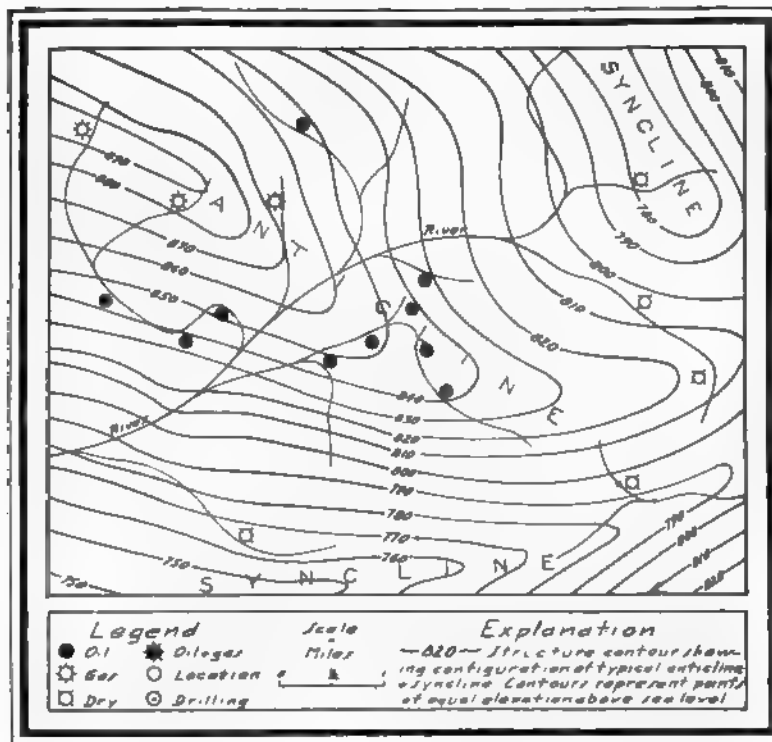
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\*Jillson, W. R., The new Oil and Gas Pools of Allen County. Dept. Geol. and Forestry, Series V, Vol. I, No. 2, July, 1919.

## CHAPTER IV.

### THE COMMERCIAL PRODUCTION OF OIL AND GAS.

Contrary to a somewhat widespread opinion, the business of oil and gas production in its modern development is a highly complicated industry. There are many features, small apparently in themselves, which make for success or failure in every oil venture. Realizing the importance of detail, all of the large producing companies in the United States are thoroughly organized for the specific purpose of carrying out this kind of field and office work. In the smaller producing oil companies where leased property has to be examined or de-



**Geologic Structural Map—Productive Anticline and Non-Productive Syncline.**

veloped, it frequently becomes the duty of one "all around field man" to check up and take care of the many details of the operation.

It is now generally recognized throughout the United States, that the safest way to open up a new oil pool is to secure a favorable structure map by a reputable geologist on undeveloped territory. However, in Kentucky, this is not always possible, due to the fact that large portions of the state cannot be mapped accurately in advance of the drill. In this state, therefore, the procedure is generally to first acquire leases and then to work out the geologic structure if possible. In any event no property should ever be started on its developmental

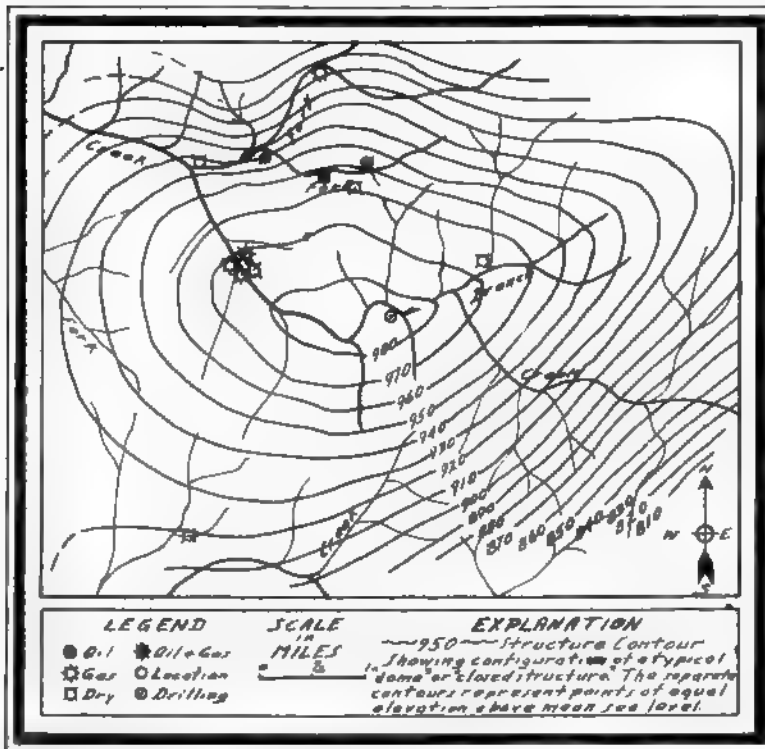


A PROSPECTING DRILLING.

Isolated rig and tank in the Ross Creek, Estill County, field "feeling out" new production areas. Photo by R. L. McClure, March, 1919.

career until an oil and gas geologist of reputation has made a report on it.

When the most favorable locations on any property or group of properties have been determined, contracts are let and drilling rigs are brought in for the purpose of prospecting. Initial wells may be producers or may be dry. When production is secured arrangement must be made at once to store or to dispose of the oil, since the proved production of any property, though it increases the value of the same, does not become of useful economic value, until it is placed upon the market. In Kentucky, gas wells when located close to a trunk pipe line, are considered an asset, but when not located near a trunk line, are considered a liability. Any oil well, wherever located, producing five or more barrels a day from a "pay" sand not over 500 feet deep, is considered a dis-



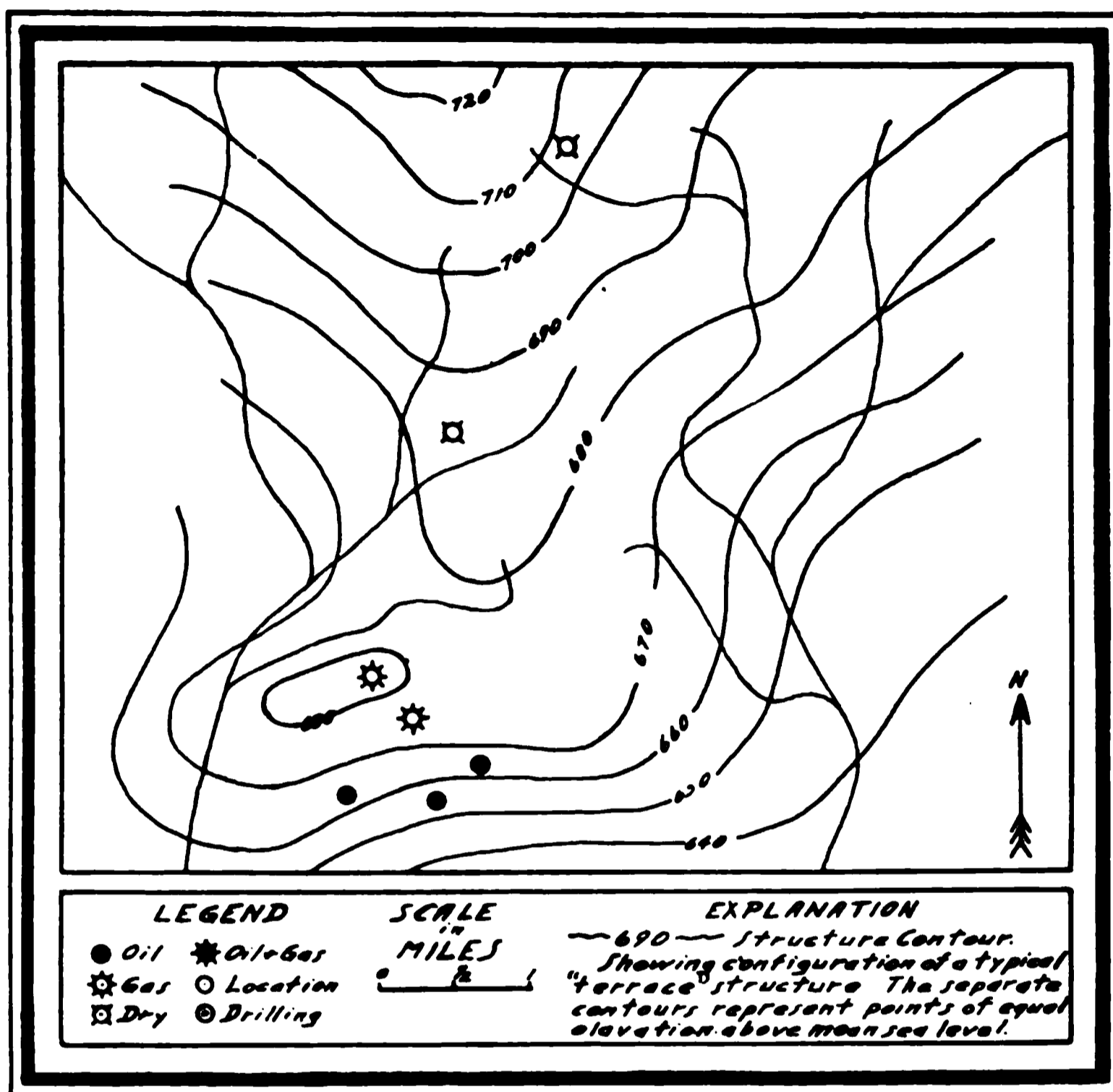
Geologic Structural Map—A Closed Anticline or Dome.

inct asset. Generally speaking, deeper "pay" sands require corresponding increased production to be commercially important.

In the event he strikes oil or gas on any property, the first thing generally done by the operator is to buy all the available leases close to his production. If he has a geological map of the structure on which he has drilled, he will attempt to follow the oil horizon on that structure. In most cases following the oil strike, there is a wild scramble for all the available adjacent property.

It is in rushes of this kind that many inexperienced would-be oil operators purchase property which can never be made to produce. Such properties are quickly evaluated at many times their real worth and become an important factor of exchange among lease manipulators. Eventually these undesirable properties, though relatively close to the new production, must spell failure. While it is true that many important producing pools in Kentucky as well as in other parts of this country have been located solely by the aid of geologists, it is no discredit to the men of that profession to say that some of the most important pools in this country have been located entirely by "wild cat" and unscientific drilling. It should, however, be noted as a fact of some importance, that at the present time, there are no large producing oil companies in the United States, engaged in the development of unproved territory that are not operating upon geological advice. The simple reason for this remarkable state of affairs is, that while the oil and gas geologist can not positively say that oil and gas underlie any individual property, he can nevertheless (1) keep his clients from drilling a large number of worthless dry holes, (2) save them large expense on the drilling, which they do undertake, and (3) increase their chances of ultimate success.

In Kentucky, there are no uniform rules in the matter of lease writing. Many forms of leases have been used, and the practice common in one locality, generally does not hold for another. The leases are, however, generally for a term of from five to ten years, with rentals, per acre, per year, from ten cents to one dollar. In any undeveloped territory, the first rentals are paid in



Geologic Structural Map—A Terrace

advance. The leasing contract is always a private transaction. In developed territory a bonus is generally paid the land owner in addition to the rentals. This bonus may be from one to fifty dollars per acre, and depends entirely upon the known or the estimated value of the neighboring production. A common and good form of oil and gas lease is given in the appendix of this volume. With it are attached forms, (1) for the deeding of oil and gas, (2) agreement for the sale of all mineral rights, and (3) the general form of a separate oil and gas assignment of lease.

### MANAGEMENT OF PROPERTIES.

The management of oil properties in Kentucky varies according to the special conditions, found in the particular field of operation. The problems involved are: (1) The method of most practical and efficient re-

covery of the oil and gas. (2) The certain decline from the initial (flush) production. (3) The method of marketing the oil and gas produced.

In Kentucky most of the oil is secured by the pumping of the well. To the pump jacks, steel lines are connected with a central pumping house to provide the power necessary. A few wells in this State during their early life history fall into the class which is known as "flowing wells." These wells bring their oil to the surface without any mechanical assistance. Most flowing wells later, in their life history, go on the pump because of the decline in the gas and water pressures, which are natural forces that force the oil to the surface. In placing the well on the pump, in some cases in eastern Kentucky where the standard wooden built derricks were



**PORTABLE OIL DRILLING RIG.**

This is a Sparta No. 30, a very improved and up-to-date tractor drilling machine. Other portable rigs, are the Parkersburg, Star, Armstrong, Keystone, Clipper and National machines.

used for drilling purposes, the derrick is allowed to stand over the well, and the well is pumped on the beam of the drilling rig. On the western rim of the eastern Kentucky oil field, and in the south-central portion of Kentucky where portable rigs such as the National, Parkersburg, Keystone, Sparta, Clipper, Armstrong and Star are used, the drilling outfit is moved away at once and the separate pump jack is installed.

## AMOUNT OF PRODUCTION AND DECLINE OF WELLS

One of the most important problems concerning the operation of any oil property is the estimation of its commercial life. It is impossible to determine with any degree of accuracy the life of any individual oil well. It is not impossible, however, to figure the history of a certain group of wells, providing figures of known production to determine the life of same group of wells are available. At the same time, it is possible to estimate the amount of production which will eventually be taken from a group of wells, but it is not possible, in any case with any amount of detailed figures, to determine exactly the amount of oil which may be under any property.

In determining the life of a property the known production data are plotted in the form of a curve. Such curves always show minor irregularities due to the special field conditions or interrupted production. A small curve redrawn over such an irregular line is the one which is finally adopted. The top production of any field is never reached so long as the new and old production combined show an ascending curve. When the new production developed in a field does not balance the decline in the old production, the total production of that field begins to show a loss. Sometimes the condition is only temporary. When it is continued indefinitely, however, then that field from the time of its highest production may be said to be on the decline. The decline in any field is due to three causes. (1) Actual reduced amount of oil available. (2) Reduction of gas pressure. (3) Flooding of the outlying portions of the pool by salt and fresh water.

### MARKETING KENTUCKY OIL AND GAS

As soon as oil has been brought to the surface, it is necessary to store it in tanks if pipe line accommodations are not available. If pipe line connections are immediately available with refineries, tank car or river barge transportation companies, these must be estab-



DEVELOPMENT ON ROSS CREEK.

View on the J. F. Harris farm, three and one-half miles from Evelyn. Producing property of Mason & Dixon Oil Company. Photo by R. L. McClure, March, 1919.

lished. Storage tanks are generally of the two-hundred and-fifty-barrel wooden type or the five-hundred-barrel steel type. There are, in Kentucky, no real large tanks except at the refineries at Louisville. The largest steel tank used in the mid-continent field has a capacity of fifty-five thousand barrels. There are, however, many twenty thousand barrel tanks and ten thousand barrel tanks are common. Recently, new designs of concrete tanks have been placed on the market by a large contracting concern. These are being used with success in a number of places in the mid-continent and Texas fields, due to high price of the steel tanks which frequently cost from ten to forty thousand dollars apiece.

In Kentucky the oil and gas pipe lines may be divided into two classes. The principal oil transportation pipe line is that operated by Cumberland Pipe Line Company which serves the Wayne County and Beaver Creek field in the southern and eastern parts of the State, and the Estill, Lee, Powell, Wolfe, and Morgan fields in the central-eastern section. The oil in Allen and Warren Counties is served by the Indian Pipe Line, the American Pipe Line and the Smith's Grove Pipe Line. The gas production of Kentucky is served by two companies, that of the Louisville Gas & Electric Company and that of the Central Kentucky Natural Gas Company. Both of these lines extend from Inez in Martin County to Central Kentucky, the Louisville Gas and Electric Company line crossing this section of the state and terminating at Louisville, Kentucky. Recently, preparations have been made to connect the Beaver Creek gas field in Floyd County with the Louisville Gas & Electric Company's pipe line north of Paintsville. This line will be extended by the Pendegrade Oil and Gas Company. Within general limitations, it may be said that the gas pipe line connections in Kentucky are thoroughly inadequate, because there is a very large amount of unmeasured index gas scattered throughout the eastern Kentucky coal fields. The future promises the probable commercialization of all the gas which Kentucky can produce. A very small portion of the natural gas now available is, at present, being used for casing head gas, gasoline and carbon black production.

## CHAPTER V.

### STRATIGRAPHY AND EVALUATION OF KENTUCKY OIL AND GAS SANDS

#### THE ORDOVICIAN SYSTEM

#### THE CALCIFEROUS GROUP

In Kentucky, the lowest sediments, stratigraphically, about which anything is definitely known, are those which have been referred in a group to the "Calciferos."\* Their basal position in the column establishes them as the oldest rocks in the State and, for this reason, they command more than passing attention. Unexposed in outcrop at any point within the boundary of Kentucky, all information concerning them is based upon the examinations of a number of drillings made at various points in or close to the central Blue Grass Section. Further studies which are now being made by the author of the log samples of the deep well drilling south of Nicholasville in Jessamine County nearly on the apex of the Lexington dome of the Cincinnati arch, point to the conclusion that here may exist under the broad title of "Calciferos" the greater part, or perhaps the complete correlatives, of the Fort Cassion and Beekmantown epochs of the Canadian. Following the completion of this deep drilling at Nicholasville, such determinations as are made will be presented in a separate paper. The position and development of the "Calciferos" sediments as now known are as follows:

System	Series	Sand	Lithology in Order	Thickness in Feet
Lower Ordovician	Canadian	"Calciferos"	Hard sandstone Sandy limestone	700—1000?

\*All names of rock formations accepted and commonly used as drilling terms will be quoted in this chapter to aid the reader in learning the Kentucky oil sands.

The uppermost "Calciferos" strata directly underlie the well known "Trenton" group. They are generally found to be white, fine grained, somewhat porous, siliceous, magnesian limestones. Certain phases of the limestone in this column are strongly oolitic. Frequently, the main calcareous body is capped by very hard, compact sandstone. The lithology, as determined by comparison of a number of well logs, is strikingly similar. The sandy condition of the true "Calciferos" has caused it to be a remarkable source of salt water and the mineral water from a number of the deeper Kentucky wells has been referred to a source in this formation.

The evidence presented by the unsuccessful drilling of the "Calciferos" at Frankfort, Louisville, and Nicholasville is decidedly opposed to a consideration of this formation or group of formations in central Kentucky as a probable producer of commercially important oil. In a well that was drilled into the "Calciferos" some years ago near Elizabethtown in Hardin County, some gas was secured. Again in the eastern part of the State, on White Oak Creek in Estill County, two old drillings struck showing; one, oil and one, gas. The very small quantity, in all three of these wells, combined with the great depth—2,300 feet in the Estill wells—has caused farther prospecting of this sand to be attempted only very occasionally. Older sands than the "Calciferos" have produced in the Appalachian Field. That the "Calciferos" formation (or formations) contain a small amount of isolated oil or gas has been proved, but that it will ever be commercially important as a producer of oil or gas in central Kentucky must be very sincerely doubted.

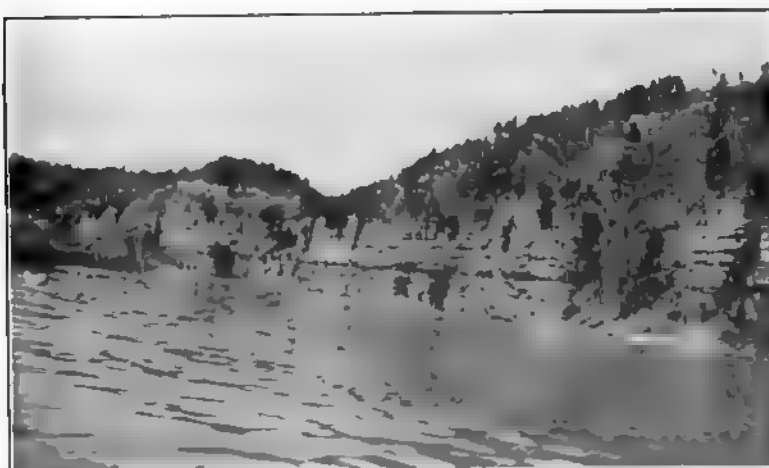
### THE TRENTON

In the drilling vernacular, the term, "Trenton Sand," famous for its production of oil and gas in Ohio, is expanded in Kentucky somewhat beyond its real stratigraphic limits. Properly, the "Trenton" is a series of gray, granular, and sometimes crystalline limestones of about 270 feet in thickness, that lie at the top of the middle division of the Ordovician. They have their typical exposure about the city of Lexington and have for this reason been called the Lexington limestones.

The areal distribution of these rocks is small in the Blue Grass. Following the dip on the Cincinnati anticline they go under cover, and from an elevation of about 1,000 feet above sea level at Lexington, they drop to about 2,500 feet below the surface at Owensboro; 3,500 feet near Ironton, Ohio, and more than 4,500 feet below the surface at Wheelright in Floyd County, Kentucky.

System	Series	Sand	Lithology in Order	Thickness in Feet
Middle Ordovician	Champlainian	"Upper Trenton" "Lexington"	Gray Granular to Crystalline Limestone	270
		"Lower Trenton" "High Bridge"	Thick bedded and compact Limestone.	600 +

Below the "Trenton" proper or "Lexington" limestone, there is a long series of thick bedded, compact limestones, which is called the "High Bridge." These rocks are the lowest ones stratigraphically that are exposed in the State of Kentucky. They may be



KENTUCKY RIVER TRENTON LIMESTONES.

View about one mile above Cummins Ferry, looking down stream.  
Photo by W. R. Jillson, April 12, 1919.

seen to good advantage in the Brooklyn (High) Bridge section of the Kentucky river gorge in Woodford and Mercer Counties. They continue vertically at this point below drainage about 200 feet to the "Calciferos" upon which they rest unconformably.

Taking it as a whole, the "Trenton" must be regarded as one of the commercially important oil and gas producing horizons in Kentucky. It is, in fact, one of the very earliest horizons to have shown production in this State. Since 1829, the time the "Burkesville Well" in Cumberland County was drilled, many thousands of barrels of oil have been produced from the various "Trenton" sands. However, though much may be said in favor of the "Trenton" in Kentucky, it must always be remembered that its total production to date, even through nearly a century of exploitation, does not begin to compare in volume with that of some of the higher and comparatively recently discovered "pay sands." Moreover, the "Trenton" has always been prospected with a great deal of hazard, and, generally, it may be said that, outside of a few favored and somewhat restricted localities in southern Kentucky, it has been found barren of either oil or gas in commercial quantities.

Wayne and McCreary Counties contain practically the entire productive area of the "Trenton." The so-called "Deep Sand" of Wayne County is probably within the Knox dolomite, the lowermost of the "Trenton" group. Various pay sands of lesser depths than the "Deep Sands" found in Barren, Wayne, Clinton, McCreary and Cumberland Counties, belong in what is known as the "High Bridge" or "Lower Trenton." In the shallower sands in these same counties, the principal pay has been found in what is styled the "Lower Sunnybrook." This sand has come to be regarded as the only definite oil pay in this limestone horizon, the other pays coming at very irregular depths of from 250 to 850 feet below the surface in these southern counties. Because of the great irregularity of these lower sands,

little dependence can be placed in them, and it is certain that they cannot be regarded as important producers of crude oil in Kentucky.

### THE CINCINNATIAN

Directly above the "Trenton" group and just below the base of the upper Silurian, where it is present, and the "Black Shale," where the Silurian is absent, lies a rather thick series of limestones, bastard limes, blue shales, and some thin calcareous sandstones. These were called by the older geologists the Hudson group. South of the Kentucky line in Tennessee they are known as the Nashville group. These rocks, which form the outer Blue Grass section of this State, find their strongest and most typical development here. In this portion of Kentucky they reach an aggregate thickness of about 700 feet and have been stratigraphically divided into three stages which are in ascending order, the Eden, the Maysville and the Richmond.

System	Series	Sand	Lithology in Order	Thickness in Feet
Upper Ordovician	Cincinnatian	"Caney" "Upper Sunnybrook" Barren County "Deep" Cumberland "Shallow"	Limestone Blue Shales Sandstone	450-700+ or-

South of the central Blue Grass area, the Cincinnati again outcrops along the Cumberland River in widening exposure from the southwestern part of Pulaski County to the State line in the southeastern part of Monroe. In this region, however, due to its proximity to the saddle between the Lexington and Nashville domes, only a portion of the full thickness of this group may be seen. In this section of the State the entire group thickness would be about 450 feet, due to the absence of the upper members. Because of the difficulty

with which the base of the Cincinnati and the top of the Trenton is determined under cover, little is known concerning the thickness of this upper Ordovician group at any considerable distance away from the outcrop. It is thought, however, that with a thickness of 450 feet in Cumberland and Clinton Counties, that it will thicken to 550 feet under Wayne, and attain 600 or 650 feet in Whitley County. In Russell and Pulaski, 500 to 550 feet is the average. West and southwest of Cumberland County very little success has attended efforts to delimit the Cincinnati, but estimates of from 600 to 700 feet have been made. Due to the rapid dip to the northwest, this group of rocks attains great depths in western Warren and Logan Counties, and is therefore unimportant from a prospecting standpoint.



OLD LAGRANGE GAS WELL.

This well which is located on a farm one mile southeast of Lagrange, Oldham County, and on the headwaters of Floyd's Creek, was drilled in by Lagrange capital about twenty years ago. Never a large producer, local reports state that it early became exhausted. It is located on a small anticlinal fold. Of three other old gassers one is still producing. Photo by W. R. Jillson, April 13, 1919.

As an oil and gas producing horizon, the Cincinnati has just claims to recognition. It contains the "Caney" Sand of Wolfe and Morgan Counties. The "Upper Sunnybrook" of Wayne also belongs in this series. Various shallow Blue Grass wells have found small production in this group. Examples of these are the Oldham County gas wells near Lagrange, and the Bourbon County oil wells near Middleton. In Barren County and in Clinton County production was secured by some old wells in a sand 300 to 400 feet below the "Black Shale." At such a depth this sand may well be included within the Cincinnati. The principal area of productivity of this group of rocks has been outlined in the southern central part of the State, and it is not thought likely that any pools of importance will ever be located at any great distance from this section.

## THE SILURIAN SYSTEM

### THE CLINTON FORMATION

The lowermost formation in the Silurian System, as now understood in Kentucky, is the "Clinton" sandy magnesian limestone. Though well and widely known among oil men by this name, it has been rechristened during the past decade, and is now properly called the Brassfield, after a typical exposure in Madison County. It is a rather thin bed, varying between 10 and 20 feet, the thicker portions being on the eastern side of the Cincinnati arch. In the certain occurrence of the "Clinton" or Brassfield on both sides of the Cincinnati arch, this formation bears an unique distinction in the Silurian Group, for it is the only one of which this is true. Reddish in color, the Clinton generally exhibits the well known "flax seed" iron ore, lithological characteristic, which in many drillings has assisted considerably in its identification. Geographically, the Clinton is an eastern and western Kentucky limestone. It does not occur in the central Blue Grass, having never been deposited in this section, which was probably a land area during the Clinton time.

Throughout Kentucky where it has been identified definitely, the "Clinton" is found to be petroliferous, but it cannot be said that a single instance of important commercial quantities of oil or gas can be referred to it in this State. In western Kentucky it is recognized in wells as a light blue limestone. In the eastern province it is a darker sandy limestone if it does not show the more typical reddish color and the "flax seed" characteristic. Following the uniformity of dip on either side of the arch, the "Clinton" or Brassfield drops off rather quickly both to east and the west, and it is only reached at those points, which are somewhat removed from the rim, by rather deep drilling. The position of the "Clinton" is shown in a table in a discussion of the Niagaran, since it is now considered the lowermost member of this group.

#### THE NIAGARAN

Although the term "Niagaran" has been recently expanded by stratigraphers to include the underlying "Clinton" or Brassfield, in the opinion of most oil producers it goes down only to this last named limestone formation. Good reason for this separation by oil drillers is found in the apparent isolation from a producing standpoint of the two divisions. Recognizing the importance here of such considerations, the "Niagaran" and "Clinton" are presented separately, though their section is given in combination.

System	Series	Sand	Lithology in Order	Thickness in Feet
Middle	Niagaran	"Niagaran"	Alternating limestone, shales, and sandy limestones.	50—250 E. of Arch 50—200 W. of Arch
Silurian		"Clinton"	Light to dark, blue to blue to reddish, sandy limestone.	5—20

The "Niagaran" proper, in Kentucky, consists of a series of alternating thick shales and then sandy limestones lying above the "Clinton" if this is excluded, or the uppermost Cincinnati—Ordovician—if the "Clinton" is taken into the group. Directly above the "Niagaran" is found the "Onondaga" ("Corniferous")

limestone of the Devonian. Always an irregular group of sediments in total thickness, it may be said that drilling has determined its greatest thickness in Estill, Powell, Meniffee, Mason, Lewis, Rowan, Fleming, Bath and Madison, and parts of adjoining counties. Farther east, west, and south the section thins perceptibly. Its greatest thickness is probably not much over 250 feet in only a few wells or localities. In the vicinity of Louisville, the uppermost "Niagaran" is what is known as the Louisville limestone. It has here a thickness of about 100 feet and is underlaid by the Waldron shale of about 15 to 20 feet in thickness. Below these lie in order the Laurel limestone and the Osgood shale with a total thickness varying from 75 to 150 feet. Proceeding south from Louisville, and under cover, some of these members of the "Niagaran" drop out and others thin considerably, giving a much reduced section in the southern part of the State.

It is only recently—within the last three years—that the importance of the "Niagaran" group of shales and limestones has come to be appreciated from an oil and gas standpoint. Development, and with it a study of the logs produced, has now placed the "Niagaran" System second perhaps only to the "Onondaga" ("Corniferous") limestone as a prolific producer of high commercial oil. The recent development of the Estill, Powell and Lee County fields—though the production here was secured mainly from the "Onondaga"—offered the suggestion that the "Niagaran" group directly underlying was very possibly making some considerable contribution to the accumulation. But it was found with the extension of the work in Allen and Barren Counties and a part of Warren County, that the role of the "Niagaran" became important. Here, occurring as a sandy limestone with a high degree of porosity, it holds a position of equal rank with the "Onondaga" ("Corniferous") and by some producers is considered superior. Its total thickness in Allen County has not been definitely determined, but this as well as the areal distribution of its productivity will be established during the present field season.

## THE DEVONIAN SYSTEM

### THE ONONDAGA (CORNIFEROUS) LIMESTONE

As the principal oil producing horizon in Kentucky, the "Onondaga" or "Corniferous" limestone commands first attention among all of the productive formations in the State. Coupled with the overlying Hamilton, found only on the western flank of the Cincinnati arch, it has been definitely classed as of middle Devonian time. East of the Cincinnati antiline the "Onondaga" occurs alone, and here it attains a thickness varying from 25 to 45 feet.



EXPOSURE OF ALLEN-BARREN "OIL SANDS."

The upper ledge is the Onondaga "Corniferous." The lower ledge, the upper portion of which protrudes above the water, is the Niagaran. The view is at the mouth of Glover's Creek on the Barren River, Barren County, Ky. Photo by W. R. Jillson, July 16, 1919.

It rests unconformably upon the middle Silurian or "Niagaran." The slight similarity of drilling samples of these two limestone formations, though separated by a distinct shale, has led to a great deal of confusion, especially on the part of drillers unaccustomed to the sequence, as to the exact limitations of either limestone formation under cover.

System	Series	Sand	Lithology in Order	Thickness in Feet
Middle Devonian	Hamilton	"Corniferous" or "Irvine"	Cement limestone W. Ky. only	0-24
	Onondaga	or "Ragland," etc.	Cherty magnesian limestone with porous strata.	0-45

The "Onondaga" or "Corniferous" bed—the "Irvine" and "Ragland" sands as it is more popularly known among the drillers—is a thick bedded, massive, magnesian limestone. At the outcrop it is generally characterized by an abundance of cherty inclusions. These produce, as a result of unequal weathering, an irregular surface giving the "Onondaga" limestone the hornstone name. A widely distributed characteristic of this formation, especially under cover and at short distances from the outcrop, is its tendency to develop a considerable degree of minute porosity, due to solution and dolomitization. Examples of this may be seen in widely separated portions of the State. The writer has remarked the occurrence in Lewis, Estill and Allen Counties and it is to be seen at many intervening points. This porous tendency is the chief factor of importance from an oil prospecting standpoint, for only in those localities where the limestone is porous to a considerable degree at least, is there any possibility of recovering oil in commercial quantities.

A comparison of well records and typical exposures demonstrates that directly underlying the "Black Shale" occur three to five feet of dark brown, hard, bituminous and sometimes sandy limestone ledges, alternating with thin, dun colored, calcareous shales. This phase is the so-called "cap rock" so well known to the driller. A hornstone of a gray color and of somewhat massive character follows, which is in turn underlaid by a number of strata of gray colored flintless magnesian limestones. The base of the "Onondaga" is a white or light limestone. One of the remarkable facts in connection with the occurrence of the petroliferous strata or pockets in the "Onondaga" is that they may occur well towards the top of the formation in the hard, flinty phase, or again fairly well towards the base in the pure limestone. Frequently the oil "pay" is found at both horizons.



**WHERE THE "CORNIFEROUS" PINCHES DOWN.**

The Devonian-Silurian contact is where the handkerchief is held by the two lower men. The Black Shale—Onondaga (Corniferous) contact is at the left hand of the upper man. At this point,  $\frac{3}{4}$  mile below Glover's Creek on Barren River, Barren County, Ky., the Onondaga is only 7 feet thick. Photo by W. R. Jillson, July 16, 1919.

The result of increased drillings has been to extend the known sub-surface occurrence of the "Onondaga" limestone. In a broad way it may be said to underlie the whole eastern coal field with the exception, perhaps, of the very southeastern counties where deep drilling

has not been carried out, and where information is lacking. Passing west and southwest in an arc, it is found under Allen, Simpson and Warren Counties, and then extending north in a broadening V to the Ohio River, where at Louisville it forms with the overlying Hamilton the falls of that river. Incidentally it may be recalled in passing, that it is to the river bed outcrop at this point of the "Onondaga" limestone and the falls which it forms, that Louisville owes its birth and present industrial position.

Though so widely distributed and so productive in certain localized sections, it cannot be said that the "Onondaga" is by any means a state wide producer. In eastern Kentucky in Lawrence, Magoffin, Johnson and Floyd, it has been identified at increasing depths both south and east. In every case it has been found to be quite tight and thoroughly unsatisfactory, with only faint shows of oil or gas. Possibly the small number of wells, as compared to the widespread acreage referred to, makes any conclusions with respect to the corniferous in this section somewhat premature. However, evidence seems to point to the fact that in this or any other part of Kentucky where the over burden is thick and heavy, or where the structural location of the "Onondaga" is essentially geosynclinal, this well known horizon does not have much to offer to the oil and gas prospectors. As the greatest oil producing horizon in the state, however, it will continue to be of great interest, and will be "wild-catted" in many forlorn and out of the way places by hopeful prospectors. The net result of this faithful exploration will result without doubt in the discovery of a number of new oil and gas pools of varying importance. To date, the following, the chief pools in Kentucky, derive their production from the "Onondaga" or "Corniferous" limestone either in part or in whole. (1) Ragland, oil; (2) Menifee, gas; (3) Irvine, oil and gas; (4) Campton, oil; (5) Cannel City, oil and gas; (6) Big Sinking, oil; (7) Ashley, oil; (8) Ross Creek, oil; (9) Station Camp, oil; (10) Miller's Creek, oil; (11) Buck Creek, oil; (12) northwestern Allen County pools, oil and gas; (13) some Barren County pools, oil and gas; (14) some Warren County pools, oil and gas; (15) various other small and, as yet, unimportant oil and gas pools.

### THE BLACK SHALE

Resting unconformably on the "Onondaga" or "Corniferous" limestone, for which it serves as the principal protection, the "Black Shale" of upper Devonian time is the most pronounced, widely distributed, and best known drilling horizon in Kentucky. It has as equivalents, in part or in whole, the "Ohio Black Shale," the "Chattanooga" shale of Tennessee, and the "Genesee" shale of New York. In some places in Kentucky, principally from the vicinity of Morehead southward in a belt underlying the western edge of the eastern coal field, the superimposed Bedford and "Berea" formations of the lower Mississippian pinch out and drop the black or



THE DEVONIAN LIMESTONE AND SHALE.

This view shows the Onondaga (Corniferous) Limestone and the Black Shale, above it. In cut on Winchester-Irvine branch of L. & N. R. R. Photo by W. R. Jilson.

brown Sunbury shale of the same system down on to the Devonian "Black Shale." As it progresses to the south, the Sunbury thickens, and lying immediately above the "Black Shale" with no definite line of demarcation, it frequently is included with the "Black Shale" in the logs of drillers. While the error is widespread, it is unintentional and, for the most part from a drilling or production standpoint at least, makes no difference. In this

discussion all references to the "Black Shale" are directed to that portion only which is upper Devonian. Due to the above causes, however, it is quite impossible to eliminate a small element of error. In stratigraphic section the black shale appears as follows:

System	Series	Sand	Lithology in Order	Thickness in Feet
Upper Devonian	Black Shale	"Strays"	Black, fissile Bituminous Fine shale	75—Southeast 240—Northeast —Southwest

The prospecting drill has pierced the "Black Shale" in nearly every part of the state except the central Blue Grass and the Jackson Purchase. In the Blue Grass section it can never be found since the leveling agencies of erosion have removed it. In the Purchase it is much too deep to be of interest. In all other places it has been found to have a very uniform, lithologic character, rather soft under the bit and always easily recognizable.



AN ANTICLINE BUT NOT AN OIL STRUCTURE.

The view shows a small anticlinal buckling and slight faulting with perpendicular drag zone in the Black shale on Sulphur Creek, Nelson County, Ky. This structure and many others of its kind possess illustrative values only. It could not possibly have any effect on oil and gas accumulation. Photo by W. R. Jillson, July 14, 1919.

ble. It never fails to show a very oily and gassy character. A considerable number of so called oil seepages have been reported along its outcrop, but none of them are large or of commercial importance. Though always suggestive of oil and gas, the "Black Shale" in Kentucky has but a very few instances of actual occurrence of these hydrocarbons in commercial quantities. Of these exceptions to a widely established rule, there are three that deserve attention. The first and oldest of these is the Meade County gas which comes from a "Stray" sand in the "Black Shale." The second of these is that of a single gas well, in a thin "Stray" sand at a depth of about 2000 feet in the Beaver Creek section of Floyd County. The third instance is that of one or two relatively shallow wells which have penetrated the "Stray" sands in Barren and Allen Counties rather recently.

In all of these instances the production from these "Black Shale" "Strays" has been gassy and not oily. This fact is remarkable. It is especially remarkable when it is taken into consideration that the chief oil horizon of the state, the "Onondaga" limestone, underlies directly the "Black Shale," and that this same shale is frequently found to be overlaid by various oil horizons of high quality, if generally of small quantity. It is a matter of record that many geologists of ability in Kentucky have subscribed their approval to the "Black Shale," as the indigenous source of Kentucky's principal oil production. The reasons for such subscription and accord are difficult to perceive. It may be said plainly that not only does the above remarkable fact serve in the mind of the writer to condemn such unfounded conclusions, but that there are besides this many additional reasons why the "Black Shale"—the most oily, gassy, and barren horizon in Kentucky—is without commercial oil pools of importance.\* In some parts of Ohio and Tennessee, as well as in Kentucky, small amounts of low rock pressure gas—indicating plainly the cut off and confined lens character of the "Stray" sand—have been found and used commercially. However, as an important producer of gas the "Black Shale" is quite as much a failure as it

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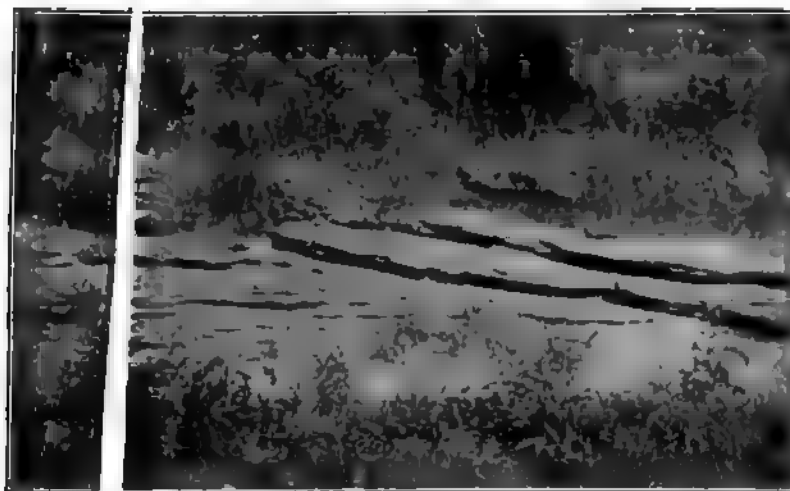
\*Jillson, W. R., The New Oil and Gas Pools of Allen County, Dept. of Geol. and Forestry of Kentucky, Mineral and Forest Resources, Series V, Volume I, No. II, pp. 120-143, 1919.

is in the production of oil in commercial quantities. Whatever rare and individual exceptions may be taken to this stand, it cannot be denied that the principal oil and gas hydrocarbons indigenous to the "Black Shale" are still within it, and by virtue of their present chemical condition and widespread distribution protected from recovery by the exploring drill. What percentage of the known petroliferous content of this formation may be recovered through destructive distillation methods remains for the future to disclose. A number of tests run separately on this shale from samples taken at points all around the "horseshoe" of the outcrop in Kentucky show that the "Black Shale" may be expected to produce under ordinarily severe methods from 10 to 25 gallons of tarry or oily substance to the ton. It has been claimed that with better and improved methods as much as 30 gallons can easily be secured. While the practicality of placing such large investments in a venture of this kind, as would be required, is seriously doubted under present market standards, it may be pointed out that, should these same conditions change, this great petroliferous shale body may offer practically unlimited supplies for a future and higher priced market.

## THE MISSISSIPPIAN SYSTEM

### THE WAVERLY SERIES

Outcropping close to the western border of the eastern coal field from Lewis and Greenup Counties southwesterly to the Tennessee-line counties of Allen, Monroe and Cinton, and thence north through Taylor to Bullitt at the Ohio River, are found that group of shales, limestones, and sandstones which have been given the group name of Waverly. As a rule these lower Mississippian sediments are clastic—sandy and shaly—in the northeast. They become more calcareous and less clastic toward the south, and on the swing around again to the north toward Louisville they become somewhat calcareous. In general the thickness of this group is greater in the north and northeast on either side of the Cincinnati arch, and less in the southern part of the State. Greenup



#### CROSS BEDDING AND NOT OIL STRUCTURE

This is a weathering characteristic developed in the Fort Payne chert of Barren County. The dips at the right are rendered valueless as structural indications by the occurrence of the horizontal beds at the left. Photo by W. R. Jillson, July 17, 1919.

County shows a thickness of about 500 feet, which decreases to about 400 feet in Bath and Fleming. In the southern part of the State it is not more than 300 or 350 feet. The Waverly is divided into four formations stratigraphically, which are, in ascending order, the Kinderhook, the Cuyahoga, the Logan, and the Warsaw. The oil sand relationships are as follows:

System	Series	Sand	Lithology in Order	Thickness in Feet
Lower Mississippian	Waverly	Kenner	Clastics — sandstones and shales in Eastern Kentucky.	500 in N. E.
		Big Injun		
		Squaw	Calcareous shales and limestones in Western Kentucky.	400—600 in E.
		Warsaw		300—350 in S.
		Beaumont	200 in S. E.	
		Strasburg		
		Mt. Lebanon	400 in W.	
		Beaumont		
		Otter		
		Cooper		
		Slickford	Barren,	
		Amber oil sand o.		
		Warren and Simpson		

The areal distribution or outcrop of the Waverly in Kentucky is considerable but this expanse is about doubled by its extent under cover. It underlies the eastern and western coal fields, and probably also the Jackson Purchase but at much greater depths. The Waverly contains a long list of petroliferous sands. Many of these sands are of widespread extent, such as the "Big Injun" group. Some are localized producers only, as the "Wier" and the "Berea," the Wayne County group, or the Barren, Warren and Simpson Counties amber oil horizon. East and west of this outcrop the Waverly, following the normal dip, plunges rapidly under cover, where well records in general easily establish its position and its petroliferous sands.

In the eastern coal field the counties of Lewis, Greenup, Carter, Boyd, Elliott, Lawrence, Johnson, Martin and Floyd are underlaid either in part or in whole by the Berea and Wier sands, which are the lowest widespread producers in the Waverly group. Furthermore, these sands are to be regarded as productive on structure within this area as shown by many tests. In Wayne and adjoining counties, the "Stray," "Mt. Pisgah," "Beaver," "Otter," "Cooper" and "Slickford" sands are productive. The entire southeastern portion of the eastern coal field, from Mt. Vernon in Rockcastle County eastward to Inez and the Tug Fork of the Big Sandy River in Martin County, is underlaid by the "Big Injun" group. This group, to name them in a descending order, consists of the "Keener," "Big Injun" and "Squaw" sands. In this group well records show that one or two of these sands are generally missing. The "Big Injun" group may be regarded as a gas producer of importance in eastern Kentucky, but it is not an oil horizon in the commercial sense of the word though very small high gravity oil production is being secured from it from a well on Toms Creek in Johnson County.

## THE ST. GENEVIEVE-ST. LOUIS LIMESTONE

The most persistent and easily recognized shallow-to-medium deep limestone horizon in Kentucky is that which is known as the St. Genevieve-St. Louis group. It is the outstanding calcareous feature of the Missis-

sippian System. Taken together with their occasional thin sand inclusion, these two formations are known as the “Big Lime” by most drillers. They are also less frequently known and correlated with the Newman limestone and the Mountain limestone of adjoining states. The sequence of this limestone group is as follows:

System	Series	Sand	Lithology in Order	Thickness in Feet
Mississippian	St. Genevieve St. Louis	“Big Lime”	Fine sands oolitic white limestone. Tan sand lens. Fine gray white compact limestone.	<div><div>20— 400 E. Ky.</div><div>5— 7 E. Ky.</div><div>475—1000 W. Ky.</div></div>

Although generally found in place, the “Big Lime” group, as may be seen from the above figures covering its range of thickness, is variable. It, however, furnishes a very important guide for wildcat drilling where it is under cover, and it is also of considerable use through the definiteness of its lower surface in those sections of the State where it is exposed and forms the surficial rocks. The “Big Lime” group was formerly one which was in much dispute, many drillers mistaking lower Ordovician rocks for it, and consequently attributing to it much lower horizons than it really occupies. However, this error is now one of comparative rarity due to the better understanding of the various sections throughout the State of Kentucky that are now being drilled. Some thicknesses of the “Big Lime,” as discovered by the drill, may be of use in further prospecting. In eastern Kentucky under the coal field, the “Big Lime” group is found thinnest in Greenup, Boyd and Carter Counties, and thickest to the southeast along the Pine Mountain fault. Near Ashland it is about 60 feet, and in Greenup 40, in Rowan and Meniffee between 20 and 60, in Bath and Montgomery between 65 and 100, in Estill and Powell about 150 to 160 feet, in Magoffin and Johnson from 100 to 140, in Floyd from 120 to 200, in Wolfe and Morgan 75 to 110, in Lawrence 150, in Martin and Pike 180 to 240. On the Pine Mountain fault it is about 400 feet thick and at Cumberland Gap about the same.

McCreary County shows in a deep well at Pine Knott 395 feet, and the outcrop in Clinton County has been measured at 303 feet. Going westward in Meade County, it is 475 feet thick, and in Hart 500. Breckinridge shows over 700 feet, and with a regular thickening to the west, 800 and 1,000 feet is what may be expected. From Whitley County westward the underlying Warsaw limestone, about 100 feet thick, is likely to be included in the drill records.

The following record of depths below the surface may be of some service. In Carter County, big lime was struck at about 80 feet, but is exposed in the lowest drainage. The rapid dip to the east puts it 500 feet below the surface in Boyd and 975 feet near Huntington in West Virginia. In the southern part of Lawrence County it is not over 160 feet below the surface, but in the central portion, due to a deep syncline, it is over 1,000 feet. In Wolfe County it is about 420 feet below the surface, and in Morgan County between 360 and 460. Progressing to the south in Magoffin, it is between 700 and 850 feet; in Floyd County, between 1,000 and 1,150. In Martin it is between 1,200 and 1,300 feet, and in Pike County about 1,500 feet. The Pine Knot well in McCreary County shows it at 900 feet below the surface. These depths, as given, are not intended as an absolute rule, but simply as an index to the general location at which the "Big Lime" group may be encountered.

Speaking within reasonable limits, the St. Louis or "Big Lime" group may be considered petroliferous. Along its outcrop, especially in northeastern Kentucky, petroleum may be seen in the cavities of freshly broken fragments. However, the quantity of petroleum in this formation is small at the outcrop and seems to be less under cover, for there is not a record well in eastern Kentucky which produces commercial quantities of oil from this horizon. However, the "Big Lime" is important from a gas standpoint, and it is certain that the gas from this horizon in Floyd and Knott Counties, where it occurs in abundance (as shown by drilled wells) will be commercialized. In Martin County, a small amount of gas from the "Big Lime" has been used and gas has been found in the "Big Lime" in Pike. The gas hor-

izon is the thin tan sand lens which occurs about midway through the limestone group. This lens is not uniformly or widely distributed, nor in all cases present in the "Big Lime," but it is known to exist in Martin, southern Johnson, southern Magoffin, Floyd, Pike, Knott, and parts of Breathitt. How much further it may be extended to the southeast remains for a prospecting drill to tell. At present, the largest gas well in Knott County, on the Bolen farm on Rock Fork of Right Beaver Creek, comes from this horizon. The life of gas obtained from the "Big Lime" sand inclusion is also a matter of speculation. Certainly it is not a thick sand, but on the other hand the limestones surrounding it are very thick both above and below, and also compact.

THE CHESTER OR MAUCH CHUNK GROUP.

This horizon, from an oil and gas standpoint, is one of the most important in eastern Kentucky. In western Kentucky the lithology changes entirely and it also undergoes a great thickening. In eastern Kentucky, the farthestmost part, the rocks of the upper Mississippian are red shales, white sands, and thin bastard limestones, underlaid by thin dark shales. This is the Mauch Chunk group, well known in West Virginia and Pennsylvania. Towards the southwestern portion of the eastern coal field, the shales and the sands disappear, or rather are graded over into an increasing amount of calcareous sediments, and as one passes over the Cincinnati arch to the western coal field, the sands and shales become interbedded with persistent limestone of the characteristic Chester.

System	Series	Sand	Lithology in Order	Thickness in Feet
Mississippian	Chester or Mauch Chunk	"Maxon"	Red shale Sandy shale White sand Shale White sand Calcareous Shales Bastard lime	E. Ky. 30 to 275
			Sandstones, lime- stones and thin shales	W. Ky. 300 to 800

In many ways the thickness of the Mauch Chunk or Chester is similar to that of the underlying "Big Lime" group. In northeastern Kentucky, the Mauch Chunk—Chester is thin, occurring at the outcrop as red and green shales with thin limestones and sands. The thickness continues as it progresses to the south and southwest, and the greatest thickness is attained in western Kentucky. The Mauch Chunk is an extremely variable formation in point of thickness, and may, due to the great unconformity which exists between it and the overlying "Pottsville Conglomerates" of the Pennsylvanian, be entirely cut out. In Floyd and Pike, where it finds its best expression in eastern Kentucky, it has a thickness varying from 130 to 268 feet. In Martin County it varies from 140 to 274. In Knox County it is about 268 feet, and the Pine Knot well in McCreary is 93. In western Kentucky, in Hancock County, it is 597 feet, and in the western part of the State probably reaches 800 feet.

In Eastern Kentucky the Mauch Chunk is now distinctly recognized, as in the adjoining state of Virginia, as a producer of both oil and gas, and most of the production of the old Beaver Creek field in Floyd County may be attributed to this horizon. It has been erroneously thought that the white sand, which was encountered in this section at about 1,000 feet, belonged in the "Pottsville Conglomerate" towards the base of this formation, but it is now definitely known that the Mauch Chunk covers the greater part of southern Johnson, Martin, Floyd and Pike Counties continuously, and that the oil and gas obtained in this section from a white sand intercalated between red to green shales is the "Maxon" sand of the Mauch Chunk, as known and understood in West Virginia. The possibilities of the "Maxon" in eastern Kentucky have not as yet been thoroughly tested, and it is very probable that with farther drilling this sand will be found to produce in other localities besides the Beaver Creek section in Floyd County. From a standpoint of commercialization, the oil and gas obtained from the "Maxon" are second to none in the State. Never a large producer it has, on the other hand, always exhibited the sterling qualities of high grade, green oil, high rock pressure gas, and long lived wells where either

oil or gas was encountered. The "Maxon" may occur as a single or as a double sand, with an intercalated shale or lime. It varies in thickness from 50 to 100 feet. In western Kentucky, the Chester limestones have never been shown to be productive, and for this reason will receive no further discussion.

## THE PENNSYLVANIAN SYSTEM

### THE POTTSVILLE CONGLOMERATES

One of the very earliest horizons to produce both oil and gas in the State of Kentucky was the "Pottsville Conglomerate," a shallow well drilled originally for salt that encountered both of these hydrocarbons in Knox County long before the Civil War. To the present time, the "Pottsville Conglomerate" has remained an important shallow producer of oil and gas, though it may be said that none of the wells drilled in the Pottsville have ever produced in their sum total so much oil as has



CLIFF OF THE POTTSVILLE CONGLOMERATE.

This formation caps the hills in the oil fields, east and south of Irvine and gives the rugged character to the topography. Photo by A. M. Miller, 1917.

been secured from lower stratigraphic horizons. The "Pottsville Conglomerate" is found at the base of the coal measures, and is therefore limited to the eastern and western coal fields. The name "Conglomerate" is perhaps misleading, for the group of sandtones, shales, coals and true conglomerates, which have come to be included under this heading, are not and could not all be conglomerate. Usually the basal portion of the formation is truly conglomerate, containing white quartz water worn pebbles, varying from the size of a pea, in Western Kentucky, to that of a dove's or a hen's egg in southeastern Kentucky. The Pottsville sequence, as found in eastern Kentucky, is as follows:

System	Series	Sand	Lithology in Order	Thickness in Feet
Pennsyl- vanian	Pottsville Conglomerate	Beaver-H o r t o n Pike in Floyd and Knott. Wages, Jones, Ep- person in Knox.	Alternating sands and shales.  Coals with strong conglomerate base.	50-1000

Changing thickness and the variable lithology are the two most important characteristics of the Pottsville. In general, the Pottsville thicknesses vary greatly and regularly in northeastern Kentucky to southeastern Kentucky. This is due to two factors—one, that the conglomerate portion of the Pottsville in northeastern Kentucky is the surficial rock and its thickness in many localities is no greater than that which has been left by erosion. This in some cases is as low as 30 to 60 feet. Where it is under cover and protected, its true thickness for that locality is of course obtainable. It does not entirely go under cover until it passes an east-west line, which approximates the northern boundaries of Wolfe, Mago'fin, Johnson and Martin Counties. In northeastern Kentucky, this basal group of Pennsylvanian sediments known as the Lee formations consists chiefly of a heavy conglomerate sandstone underlaid by a bed of dark shale, the latter often exhibiting coal. In southeastern Kentucky, where the maximum thickness of the conglomerate is about 1,000 feet, Lee County contains several seams of coal, with at least three strong, massive sandstones separated by beds of shale and sandy shale. Along the western

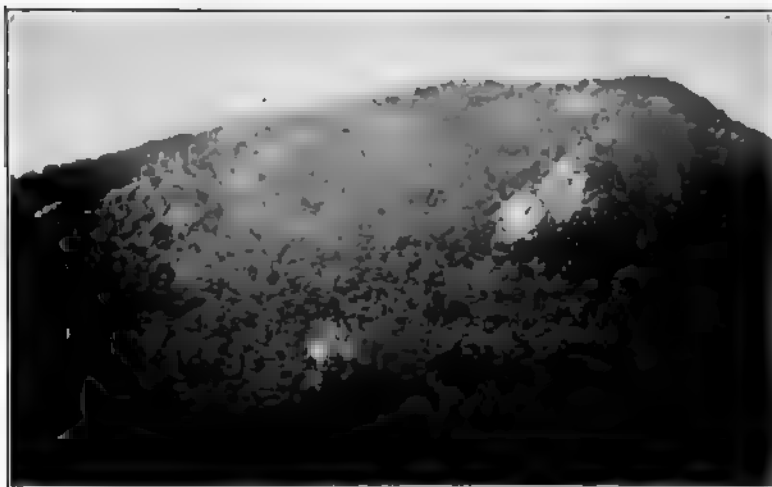


THE CLIFF FORMING POTTSVILLE.

This is a characteristic view of topography along the western border of the Eastern Coal Field, in the oil district. Photo by W. R. Jillson, 1918.

border of the eastern coal field, the "Pottsville Conglomerate," in its basal formation, forms the striking, rugged feature of the topography, and is seen as massive conglomerate and sandstone cliffs overlying the Chester and Mauch Chunk groups. In southeastern Kentucky, it is the Pottsville conglomerate which caps the Pine Mountain throughout its extent, and has not only given in its present contour, but has really, through its erosion-resisting qualities, preserved the mountain at its present height. In northeastern Kentucky the Pottsville conglomerate, in Green and Carter Counties, varies from 30 to 100 feet, in northern Morgan it is about 150, in Jackson and Menifee 300, in Wolfe 400, in Estill 271, in Morgan 450, in Boyd 500, in Lawrence 250 to 750, in Johnson 600 to 800, in Martin 600 to 1,000, in Floyd 800 to 1,000, in Pike 800 to 1,000.

The "Pottsville Conglomerate" shows three distinct sands, "Beaver," "Horton" and "Pike," all of which are petroliferous. These sands have their best development and highest petroliferous character in the central portion of the eastern coal field, which extends from southern Martin County through Floyd into



**TILTED BASAL POTTSVILLE (LEE) CONGLOMERATE AT CREST  
OF PINE MOUNTAIN.**

The view is to the southwest from an altitude of 1,800 feet across the Cumberland River Gap just above Pineville, Kentucky. The eroded Pine Mountain fault scarp begins at the mountain crest and continues to the right out of the picture—that is to the northwest. The heavy timber in the lower right hand portion of the picture obscures the exposed Mississippian limestones and shales. Photo by W. R. Jilson, May 16, 1919.

Knott and Breathitt, and further southwestward into Leslie, Clay and Knox. The thickness of these sands is variable, ranging from 50 to 230 feet. The "Beaver," the uppermost of the three, is generally thickest and frequently shows through many drillings in the Beaver Creek section (from which the type occurrence comes with the name) the maximum thickness. In the Beaver Creek section these three sands produce both oil and gas, and both are of very high quality, the oil going into the Cumberland Pipe Line as the regulation Somerset grade. It is a green to brown green fluid, crude and high in gasoline. The first well in the "Pottsville" in the Big Sandy Valley was drilled in by Louis H. Gormley in 1892, at the mouth of Salt Lick Creek on Right Beaver in Floyd County. This was a small flowing well and served as the nucleus for the group of what is now known as the Beaver Creek wells, many of which, including the original well known as the Howard Purchase No. 1, are

still producing, The oil coming from "Pottsville" sandstone is not uniform, there being a slight difference in the oil from each of the sands even where the cover is good and thick as in Floyd County. To the north and northwest, where the cover is thinnest as in Magoffin and Breathitt Counties, these sands have produced at much shallower depths—the pay horizon in Magoffin on Burning Fork being about 300 feet—but the oils obtained from these shallow horizons has always been black, stiffly flowing, with a very low Baume gravity, and almost entirely without gasoline content.

While the "Pottsville" may still be regarded as an important horizon for further prospecting, it is certain that if a higher gasoline oil is desired, the prospector must avoid the northeastern and westernmost borders of the eastern coal field. He must, in other words, go down into the Eastern Kentucky geosyncline, which passes through Breathitt from Clay and Knox, into Magoffin and Floyd and Pike, towards the northeast. It is very possible that other fields, as good as the Floyd County field, may be developed in this locality, and even further to the south, where the thickening of the strata, counteracting the raise in the dip, serves to keep the basal sands well protected under cover.

## THE CRETACEOUS AND QUATERNARY SYSTEMS

In the Jackson Purchase region, the extreme southwestern part of the State of Kentucky, all of the rocks described above dip down under a thick cover of cretaceous and quaternary sediments both of which are monuments to the two last embayments of the Gulf of Mexico over this portion of the State. Because of this covering of thick and more recent rock strata very little indeed is known of the oil and gas sands of this area. As indicated by the fact that little is known of the subsurface geology of the Purchase it may be stated briefly that this part of Kentucky has received up to the present practically no oil and gas development at all. However, there are indications that this large area will receive some drilling attention this season and probably next, and it is possible that the cretaceous and lower sediments under this region may be found to have productive oil sands here as they have elsewhere in the United States.

# GEOLOGICAL SEQUENCE OF THE OIL AND GAS SANDS OF KENTUCKY. (With General Lithology in Superimposed Order, and Known Thickness.) (Paleozoic Sediments.)

System	Series	Sand	Lithology in Order	Thickness in Feet	
Lower Pennsylvanian	Pottsville Conglomerate	"Beaver," "Horton," "Pike" in Floyd, Knott and Pike. "Wages," "Jones," "Epper-son" in Knox.	Alternating sands and shales and coals with strong conglomerate base.	60-1000	
MAJOR DISCONFORMITY					
Upper Mississippian	Chester or Mauch Chunk	"Maxon"	Red shale	30-275	
			Sandy shale		
			White sand		
				Shale	300-800
				White sand	
			Calcareous-shale		
			Bastard lime		
			Sandstone, lime-stones and thin shales		
			</		

## DISCONFORMITY, EAST KENTUCKY

System	Series	Sand	Lithology in Order	Thickness in Feet
Lower Mississippian (Eastern Kentucky)	Waverly	"Keener" "Big Injun" "Squaw" "Wier" "Berea"	Clastic-sandstones and shales in Eastern Kentucky.	500 in N. E. 400-600 in E.
Lower Mississippian (Western Kentucky)	Waverly	"Stray" "Mt. Pisgah" "Beaver" "Otter" "Cooper" "Slickford" "Amber Oil of Barren, Warren and Simpson."	Calcareous shales and lime- stones in Western Kentucky.	300-350 in S. 200 in S. E. 400 in W.

## DISCONFORMITY

Upper Devonian	Genesee	"Black Shale" "Strays"	Black, fissile Bituminous Fine shale	$\frac{7}{8}$ -Southeast 240-Northeast -Southwest
DISCONFORMITY				
Middle Devonian	Hamilton Onondaga	"Corniferous," "Irvine," "Flagland," or "Campton," etc.	Cement limestone West Ken- tucky only. Cherty, magnesian frequently porous limestone.	$\frac{3}{8}$ 0-24 0-45

MAJOR DISCONTINUITY				
System	Series	Sand	Lithology in Order	Thickness in Feet
Middle Silurian	Niagaran	"Niagaran"	Alternating thick shales and then sandy limestones.	50-250 E. of Arch 50-200 W. of Arch
		"Clinton"	Light to dark blue to reddish sandy limestone.	5-20
MAJOR DISCONTINUITY				
Upper Ordovician	Cincinnatian	"Caney" "Upper Sunnybrook" Barren County "Deep" Cumberland "Shallow"	Limestone Blue shales Sandstone	450-700+ or -
DISCONTINUITY				
Middle Ordovician	Champlainian	"Upper Trenton" "Lexington"	Gray granular to Crystalline limestone	270
		"Lower Trenton" "High Bridge"	Thick bedded and compact limestone.	400+
MAJOR DISCONTINUITY				
Lower Ordovician	Canadian	"Calceiferous"	Hard sandstone Sandy limestones (All unexposed)	700-1000?
Upper Cambrian	Ozarkian?	"Knox Dolomite"	Light and dark dolomitic limestones (all unexposed)	250+

## **CHAPTER VI.**

### **THE GEOLOGY OF THE OIL AND GAS POOLS OF KENTUCKY**

#### **MAJOR STRUCTURAL FEATURES**

The geology of oil and gas in the State of Kentucky is simple and at the same time complex. It is simple in its broad stratigraphic features. It is complex in its details of major and minor structure, porosity, and water pressures—hydraulic and hydrostatic. Stratigraphically, oil and gas production is secured in Kentucky, in ascending order, from the middle Ordovician limestones, up through the Silurian limestones and intercalated shales, the Devonian Limestone (Corniferous), the Devonian black shale, the Mississippian sandstones and limestones, and the lower Pennsylvanian (Pottsville) sandstone and conglomerates. No oil production is secured in Kentucky lower than the Ordovician (which, as it comes from the wells in Cumberland County near



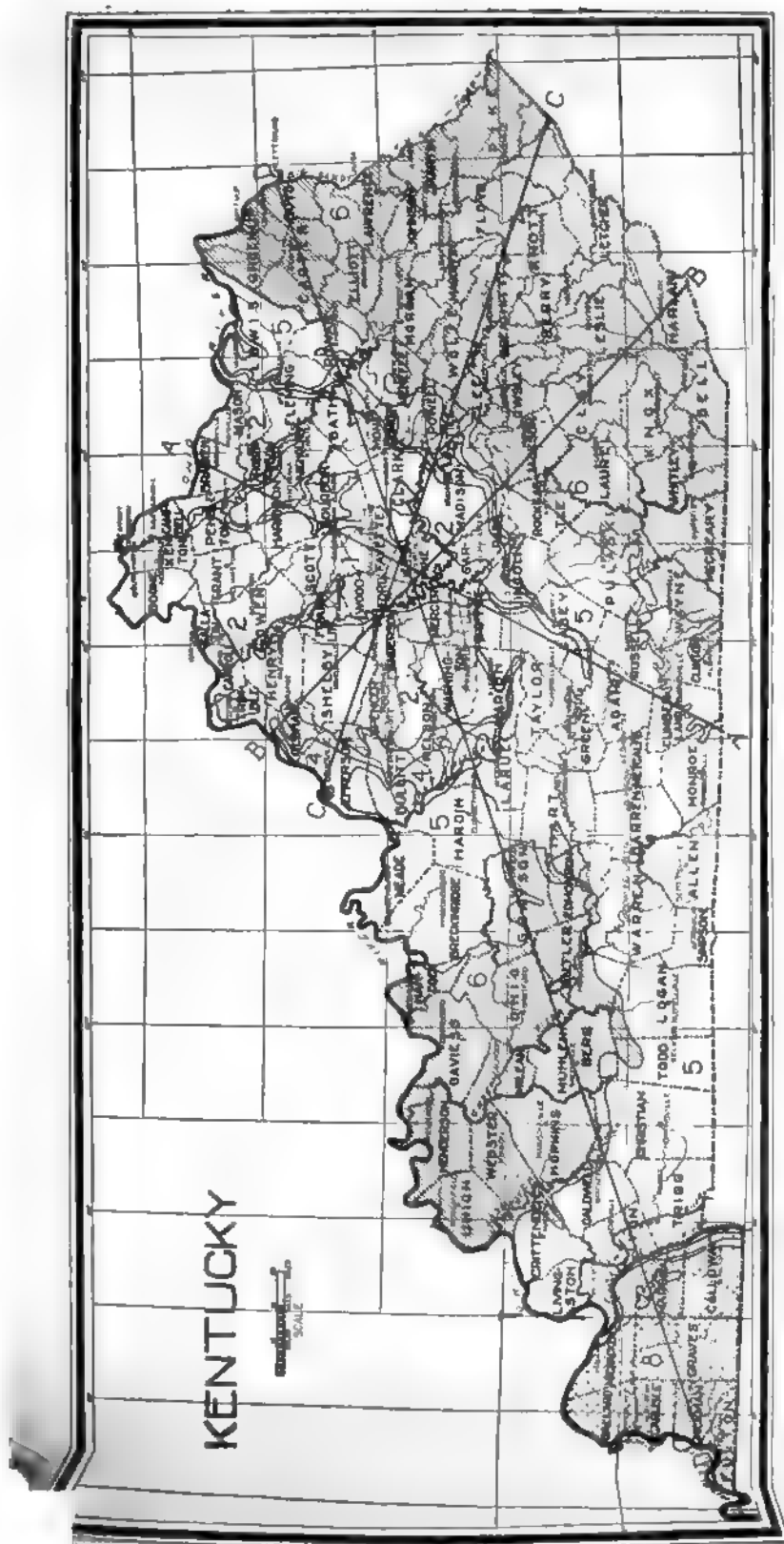
**CREST OF PINE MOUNTAIN ANTICLINE**

Falls on Russell Fork, Dickenson County, Virginia. Crest of the Pine Mountain Anticline. The view is just across the Pike County, Kentucky line. Photo by W. R. Jillson, April 5, 1919.

Burkesville, is probably the lowest oil horizon stratigraphically that is commercially important in the whole world) nor above the Pottsville. The latter rocks, with the exception of a few isolated ridge outlayers of the Alleghany formation in the easternmost part of Kentucky, and the mantel of Cretaceous and Cenozoic sediments in the Jackson Purchase region in extreme western Kentucky, are the highest stratigraphically in the State.

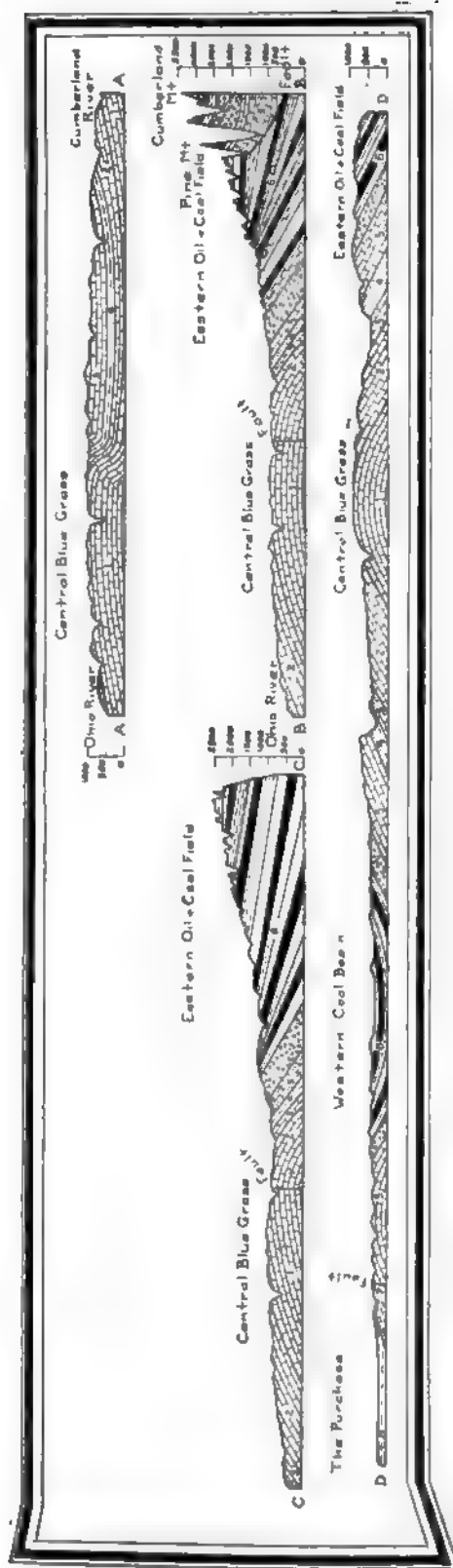
The combination of major and minor structure, porosity, and water conditions as found by the prospecting bit, are variable and, it may be said, almost always special to the locality in which they are developed. In this respect it may be added that the same conditions of structure, porosity and subsurface water, are rarely found equal in any two locations. The theory of oil and gas accumulation in Kentucky, is in a broad way, special to the State, since the major portion of the oil as now known in Kentucky, is secured from limestone horizons. The occurrence of oil in a limestone precludes the greater part of the general explanation attending oil and gas accumulations where found, as in most instances, in typical sandstones. In Kentucky, then, there exists the unusual terminology among drillers of "oil sand" or "pay sand" phrases used in reference generally to either the Onondagan or Niagaran limestones in their porous strata, although they are not sandstone strata at all.

The geologic structure of Kentucky is readily understandable. The central Blue Grass portion is a large flat dome, often spoken of as the Lexington dome, on a much larger structure known as the Cincinnati arch or anticline. This large structure extends from northwestern Ohio and Indiana southwestward into Kentucky where it reaches a high point in the vicinity of Nicholasville, and then descends along its major axis to a saddle which is found in Adair, Russell and Casey Counties, Kentucky. The major axis of the Cincinnati anticline then rises and continues on to the southwest, culminating in another dome or high section in the vicinity and to the south of Nashville, Tennessee. Falling off to the southeast and to the northwest the rocks of the eastern and western sections of the State go into syn-



SKETCH MAP SHOWING THE AREAL GEOLOGY OF KENTUCKY.

- 1. and 2. Ordovician
- 3. Silurian
- 4. Devonian
- 5. Mississippian
- 6. Pennsylvanian
- 7. Cretaceous
- 8. Quaternary
- 9. Recent



# DIAGRAMMATIC SECTIONS SHOWING THE STRUCTURAL GEOLOGY OF KENTUCKY.

The lettering of these sections corresponds to the lettering of the heavy lines on the opposite sketch map. The numbering of the formations in the sections corresponds to the numbering on the areal geologic map shown on the opposite page. These sections are all drawn to scale and are as accurate as the figures will allow.

clinal basins which are centered in the eastern and Meade and Breckinridge Counties. Using the local field Pine Mountain fault, a result of the breaking along



VERTICAL SANDSTONE AND SHALE, PINE MOUNTAIN FAULT.

On east side of Louisville & Nashville Railroad cut southeast of the mouth of Straight Creek, Bell County, Ky. Photo by W. R. Jillson, May 16, 1919.

the crest of a northeast-southwest fold, gives the strata of the southeasternmost portion of the State a northwest dip. The doming associated with the faulting of western Kentucky, northeast of the Cumberland and Tennessee Rivers, has resulted in giving the rocks of this section a dip to the northeast. A broad conception then of the structural geology of Kentucky suggests a series of folds beginning at the Virginia line in eastern Kentucky, that drops into the eastern Kentucky geosyncline;



riser over the crest of the great Cincinnati arch; drops again into the syncline of the western coal fields, and rises again to the Cumberland and Tennessee Rivers and then falls off to the west and southwest to unknown depths under the Jackson Purchase region. This conception of the structure of Kentucky is fundamentally important to an understanding of the oil and gas fields of this State for it has been the important factor in influencing the movement of petroleum from its original position, and the concentration of petroleum in commercially important pools.

Somewhat less important from a structural standpoint but very important from a standpoint of the location of the main producing pools of Kentucky is the location of an east-west line of minor structure in Kentucky. This structure has been called in eastern Kentucky the Irvine-Paint Creek-Warfield fault and fold. In central Kentucky from Irvine west to New Haven it has been designated as the Kentucky River fault and fold. From New Haven westward through Leitchfield to Shawneetown in westernmost Union County it has been called the Rough Creek fault and fold. Although all of this minor structure has not been worked out and definitely connected up, there is little doubt but that the same crustal forces were responsible for the development of these three segments along a unit line of deformation. This east-west extension of small structure is directly responsible for the location of the Warfield-Inez gas field, the Paint Creek gas field, the Cannel City, Campton, Big Sinking, Irvine, Station Camp, Ross Creek, Ashley, and associated pools in eastern Kentucky as well as the Hartford and Leitchfield pools in western Kentucky.

#### DETAILED DISCUSSION OF SEPARATE OIL AND GAS POOLS

In the State of Kentucky there are at the present time forty-six separate and commercially important oil and gas pools. These are located principally in the eastern coal field on either side of the Irvine-Paint Creek-Warfield fault and fold; in southern Kentucky, in Knox, Wayne, Barren, Allen and Warren Counties; and in Western Kentucky, along the Rough Creek fault and fold in Grayson and Ohio Counties. Two small pools



alone adjoin the Ohio River in western Kentucky in Meade and Breckinridge Counties. Using the local field name, a brief statement of the geology of each separate pool is given below, the pools being arranged in crescentric order from northwest to south to northeast.

(1) *Clover Port Gas Field*.—This is an old gas pool located in the northwestern portion of Breckinridge County adjoining the Ohio River. The pool is of diminishing commercial importance. Production was secured at shallow depths from the Warsaw formation in the Mississippian System. The structure of this gas field is a small dome.

(2) *Rock Haven Gas Field*.—The gas from this field which is commonly known as the Meade County field from its location in eastern Meade County adjoining the Ohio River, comes from a thin sand inclusion in the Devonian black shale. The gas production of this field, never large, is of decreasing importance.

(3) *Hartford Oil Pool*.—The oil in this pool is secured from above the Devonian black shale. The pool is



HARTFORD OIL POOL STORAGE.

Besides the Tank House this view shows Swell well No. 1. From four small wells in this pool 167 tank cars have been shipped to date. Photo by W. R. Jillson, 1918.



PART OF THE HARTFORD OIL POOL.

Reading from left to right the wells are: Swell No. 1, drilled to 1,780 feet in 1914; Howard No. 2, drilled to 1,760 feet in 1913; and Vance No. 1, drilled to 1,780 feet in 1914. Photo by W. R. Jillson.

small and of recent development in the central portion of the Ohio County. Its structure is associated with that of the Rough Creek fault and fold.

(4) *Caneyville Oil Pool*.—This pool is located in southwestern Grayson County. Oil is secured from the base of the Mississippian series, chiefly from the Waverly. The structure is developed by the Rough Creek fault and fold.

(5) *Leitchfield Oil and Gas Field*.—The history of this oil and gas field is recent. Gas production is secured from the Major sand of the Waverly limestones of the Mississippian. The structure is a strong half dome developed by the Rough Creek fault.

(6) *Bear Creek Gas Field*.—Located in northern Edmonson County, this gas pool is of recent development on a small dome.

(7) *Diamond Springs Gas Field*.—Gas was secured at Diamond Springs from stray sands on a monoclinal dip or terrace in the Cypress and Waverly forma-

tions. The field is located in the northwestern part of Logan County.

(8) *Jewell Oil Pool*.—This pool is located in the northernmost part of Allen County and in what is known as the "Jewell Bend" of Barren River. Oil production is secured from the Onondaga or Corniferous limestone on a small anticline.

(9) *Gainesville Oil Pool*.—This is the northernmost pool of outstanding importance in northern Allen County and is located just west of Gainesville on several associated small structures. The oil is anticlinal. Production is obtained from the Onondagan and Niagaran limestones.



OIL STORAGE ON W. M. FOSTER LEASE.

This is a fine producing property, in the southeastern part of Gainesville Pool, Allen County. Photo by W. R. Jillson, July 10, 1919.

(10) *Butlersville Pool*.—This small pool is located about seven miles west of Scottsville in Allen County. Production is anticlinal. The oil horizon is the Onondaga limestone. The drilling is shallow.

(11) *Halfway Oil Pool*.—About a mile and a half northeast of Halfway, and about seven miles northwest of the Scottsville, in Allen County, there is a rapidly developing oil pool which has been designated by the name of the adjoining post office of Halfway. The wells in

this pool are not large but are steady and consistent producers. The oil is anticlinal and is secured from the Onondaga and Niagaran limestones. The wells are shallow.

(12) *Rodemer and Petroleum Oil Pools.*—These pools are located respectively three and five miles southwest of Scottsville, Allen County. They include many pools of small size which must remain unnamed. One of these properties deserves mention since it has had gusher production. This is the Angie McReynolds lease. The oil here is controlled by porosity rather than simple structure and is both anticlinal and synclinal. Gas pressure is an important factor. Production comes from the Niagaran limestone. Shallow drilling obtains.

(13) *Adolphus Oil Pool.*—The Adolphus and associated pools are located about seven and one-half miles



A BARREN COUNTY WELL FLOWING NATURALLY

The J. R. Winlock No. 3 (flowing) well drilled in by the J. M. Karl Oil Company. March 14, 1919. Located on the northward extension of the Steffy Pool on the Lower Road to Bowling Green, three and one-half miles southeast of Glasgow, Barren County, Ky. This well flowed light green oil 44.6 Baume during a half hour gauge by the writer, one barrel every five minutes. The well made considerable gas, but no water. Photo by W. R. Jillson, March 31, 1919.

southwest of Scottsville, Allen County, close to the Tennessee line. The oil is both anclinal and synclinal because of a lack of water in some places. Production comes from the Niagaran limestone. Shallow drilling obtains.

(14) *Scottsville Oil Pool*.—The Scottsville oil pool is really a group of small oil pools developed on a number of small structures. Production is for the most part anticlinal and is secured from the Onondaga and Niagaran limestones. The wells are shallow and some of them have shown large flush production with gas.

(15) *Steffy Oil Pool*.—This old oil pool which is now undergoing redrilling and extension to the northeast and southwest is located about five miles southwest of Glasgow on the lower Bowling Green road. The oil is anticlinal with strong gas head in some wells. Production comes from the Onondaga limestone and flows natural in a few of the wells. The drilling is shallow.

(16) *Oil City Oil Pool*.—This pool is a number of years old but it is at present the center of farther prospecting. It is located about five miles northwest of Glasgow in Barren County. The drilling is shallow, and in a few of the wells small amber oil production is now being pumped from restricted stray sands. These are just above the Devonian black shale in the lower part of the Mississippian limestones, the Fort Payne and Warsaw.

(17) *Hiseville Gas Field*.—The Barren County gas field now commonly known as the Hiseville gas field is located about nine miles northeast of Glasgow. A number of very good gas wells are located in this field and it promises to be important as it is further proved. It is doubtful if the Onondaga is present here. The production is probably secured from the Niagaran limestones and perhaps lower horizons. The gas production is dependent upon structure.

(18) *Oskamp Oil Pool*.—The Oskamp pool located about five miles south of Glasgow in Barren County produces some gas and considerable oil, all from small wells. The production comes from the Onondaga, which is thin, and the Niagaran below. The drilling is shallow.

(19) *Wayne County Associated Oil Pools*.—These associated pools were discovered and the territory was proven a number of years ago. The field has repeatedly

been redrilled. The oil pools are distributed widely over Wayne County and extend eastward into McCreary County. The production is both deep and shallow. It is usually anticlinal. The Mississippian sediments belonging to the Waverly group give the following productive sands: Stray, Mt. Pisgah, Beaver, Otter, Cooper, Slickford. The upper and lower Ordovician limestones give the upper and the lower Sunnybrook and the deep "Sand" of Wayne County.

(20) *Buck Creek Oil Pool*.—The Buck Creek oil pool is located about three miles southeast of Highland and about four miles due east of Kings Mountain in Lincoln County. The production is anticlinal and is secured from the Onondaga limestone at a very shallow depth. Pipe line connections are made to the Q. & C. R. R. at Kings Mountain.

(21) *Little Richland Creek Oil and Gas Field*.—This old, oil and gas field now being redrilled and extended is located about four miles north of Barbourville, Knox County. The field is located in the eastern Kentucky geosyncline and oil is secured from the Wages, Jones, Epperson and Knox sands of the Pottsville series. Drilling is usually medium deep but generally under a thousand feet. Very little deep drilling has been done in this locality and little is known about the lower "sands."

(22) *Burning Springs Gas Field*.—This field is of recent development and is located in northwestern Clay County. Production is secured from the Big Injun and associated sands of the Mississippian system. The structure is a doming anticline.

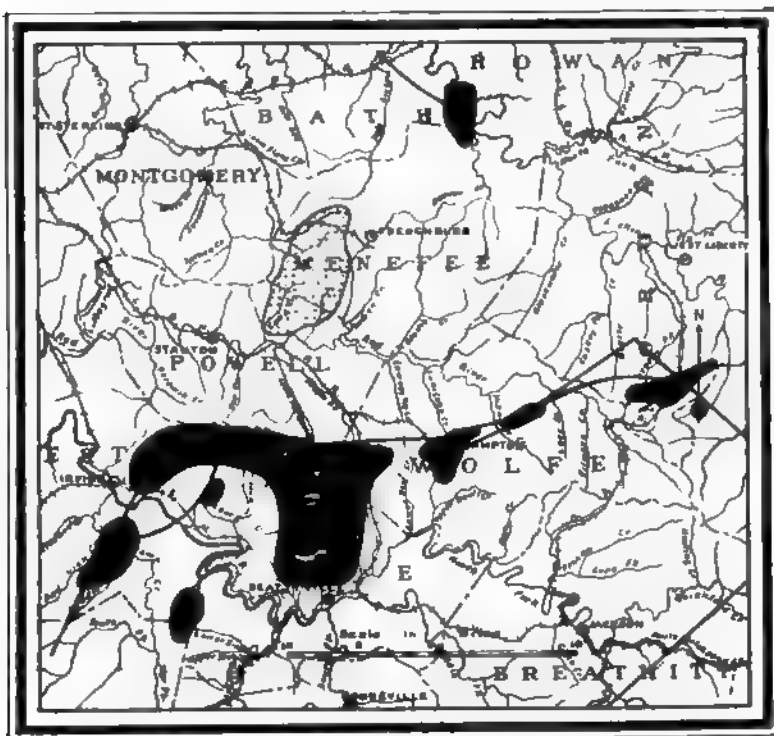
(23) *The Island Creek Oil and Gas Field*.—Of recent development, this field promises to be an important one when its full extent is known. It is located in southwestern Owsley County, on anticlinal structure. Production is secured from the Mississippian and Devonian sediments.

(24) *Frozen Creek Oil and Gas Field*.—The Frozen Creek anticline sometimes called the Wilhurst anticline is responsible for this field. The structure is located in the northwestern Breathitt County. Production is procured from the Onondaga limestone.

(25) *Ross Creek Oil Pool.*—This small but highly productive oil pool is located on a small anticline in southeastern Estill County. Very porous conditions in the Onondaga limestone are chiefly responsible for the oil accumulation. The field has been over drilled by greedy operators. Shallow drilling depths exist in this pool.

(26) *Station Camp Oil Pool.*—The Station Camp oil pool is located on Station Camp Creek, about five miles south of Irvine in Estill County. The production is secured from the Onondaga limestone, which is both anticlinal and shallow in this locality.

(27) *Irvine Oil Pool.*—This famous oil pool is the parent, from a discovery standpoint, of the present large number of oil pools in this section of Kentucky. Drilling



THE MOST CELEBRATED KENTUCKY OIL FIELD.

This sketch map of the Estill, Lee, Powell, Wolfe, Morgan, Menifee, Bath and Rowan county district shows in outline the most important producing oil and gas fields in the State of Kentucky.

was first done in this section in 1903 in very shallow wells near Irvine and Ravenna. Later extension of the Irvine pool to the east developed the possibilities of deeper prospecting in this region. Production is anticlinal and is secured from the Onondaga and Niagaran limestones which are irregularly porous.

(28) *Big Sinking Oil Pool*.—The Big Sinking oil pool is the most important oil pool in the whole State of Kentucky. Very porous conditions in the Onondagan and Niagaran limestones, which are the productive “sands” coupled with a number of small associated anticlines and water pressures from the southeast, have combined to make this the most productive oil pool in the State. The drilling is under one thousand feet for the first “pay” but deeper wells have been drilled. The pool is located in central Lee County.

(29) *The Ashley Oil Pool*.—This pool was developed in 1918, as the result of wildcat extension east of the Irvine pool. Production is secured from a very porous “pay” in the Onondaga limestone on structure. The most of the wells in this section have been large producers.

(30) *Campton Oil Pool*.—This pool is located in the west central part of Wolfe County, near Campton. Oil production is secured from the Onondaga limestone at medium depths. The structure of this field is anticlinal.

(31) *Still Water Oil Pool*.—The Still Water oil pool is located in the north central part of Wolfe County, south of the Irvine Paint Creek fault. The production is secured from the Onondaga, and the structure is anticlinal.

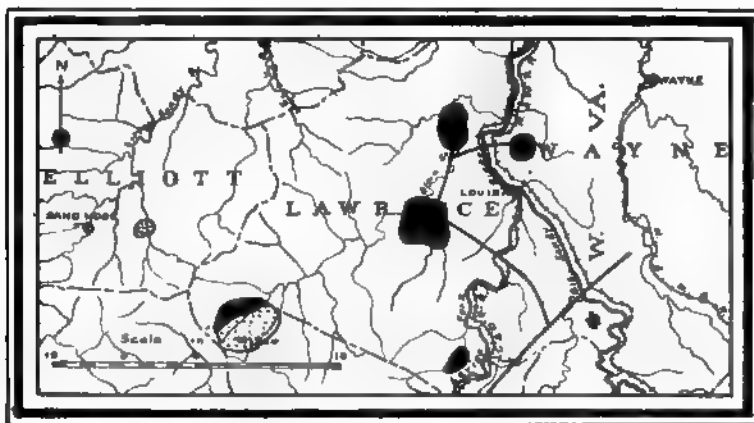
(32) *Cannel City Pool*.—This oil and gas pool is located in southern Morgan County, south of the Irvine-Paint Creek fault. Structure is anticlinal and the drilling is of medium depth. This pool was brought in with gusher production several years ago, from a few wells. The producing sand is the Onondaga limestone.

(33) *Meniffee Gas Field*.—This Gas field is located in the southwestern Meniffee and northeastern Powell Counties. The structure and gas production is secured from the Onondaga limestone. The structure is monoclinal.

(34) *Olympia Oil Pool*.—This small pool is located in the southeastern part of Bath County. Drilling is shallow. The structure is small. Production is from the Onondaga limestones.

(35) *Ragland Oil Pool*.—The Ragland pool is located in Bath, Rowan and Menifee Counties, on the Licking River. It is one of the oldest pools in the eastern part of Kentucky. Production is monoclinal, and is secured from the Onondaga limestone, at a shallow depth. The oil is dark and low in gravity.

(36) *Fallsburg Oil Pool*.—The Fallsburg oil pool is located in northern Lawrence County. The structure is close to a deep syncline. Production is secured from the Berea sand at a medium depth.



OIL FIELDS OF LAWRENCE COUNTY, KY.

These are the most important in north-eastern Kentucky. Production is secured in the Berea Grit.

(37) *Busseyville Oil Pool*.—This pool is located in central Lawrence County, west of Louisa. The field is located on a monocline just south of a deep syncline, and is controlled by minor structures. Production is secured at medium depth from the Berea.

(38) *George's Creek Oil Pool*.—George's Creek oil pool is located in southern Lawrence County. It is a small pool, lying on monoclinal dip to the north. Production is secured from the Berea and Wier sands.

(39) *Laurel Creek Oil and Gas Field*.—The field is located in the northwestern part of Johnson County and the southwestern part of Lawrence County, on the pronounced Laurel Creek dome. Gas production is secured on the high points. Oil is secured on the northern flank from the Wier and Berea sands. Drilling is to a moderate depth.

(40) *Paint Creek Oil and Gas Field*.—This important field is of recent development and is located on Paint Creek dome, sometimes called the Mine Fork dome on the Morgan and Johnson County line. It is located on the high doming structure just south of the Irvine-Paint Creek fault. Up until recently, this structure looked like a gas field but with the bringing in of an oil well, during this summer, down on the south flank, its importance as an oil territory is being established. The production is found in the Wier sand of the Mississippian, at about thirteen to fifteen hundred feet.

(41) *Ivyton Oil Field*.—This small pool is located in central southern Magoffin County on the Ivyton dome. The production is from shallow Pottsville sands and the deeper Wier sand. The Pottsville oil is dark, low in gravity, and flows stiffly. The Wier sand oil is green, of high gravity, and flows freely.

(42) *Beaver Creek Oil Pool*.—This is the oldest pool in eastern Kentucky, flowing production having been drilled in at the mouth of Salt Creek, on right Beaver Creek in 1892. The production is synclinal and is secured from four definite sands, Beaver, Horton, Pike and Maxon. The first three are in the Pottsville conglomerate. The Maxon is in the Mauch Chunk. Drilling is to a maximum depth of one thousand feet.

(43) *Beaver Creek Gas Field*.—This field is located in Floyd and Knott Counties on Beaver Creek and its branches. Production is anticlinal and is secured from the Beaver, Horton and Pike of the Pottsville; from the Maxon, Big Lime, Big Injun, of the Mississippian system; and from the Devonian black shale. Gas is secured at various depths as indicated by this long range of sands. The deepest production is found on the left Beaver Creek at two thousand feet.

(44) *Inez Gas Field*.—This field is sometimes called the Martin County field. Large gas production which has been drilled in since 1892 is secured in the anticlinal position, from the Big Lime and Big Injun of the Mississippian system. Drilling is to a depth of from one thousand to fifteen hundred feet.

(45) *Moulder Oil Pool*.—This is the latest of important oil pools in southern Kentucky. It is located in the extreme southeastern portion of Warren County, adjoining Barren County and also Barren River. Phenomenally large production for the state of Kentucky was secured from one or two wells. This is a new pool in which salt water conditions, as well as the gas are of importance. Production is secured on the eastern dip of the Onondaga limestone, which is very porous in places in this pool.

(46) *The Green Hill Oil Pool*.—Production in the Green Hill pool of Warren County comes from about thirty wells drilled slightly to the northeast of Green Hill postoffice. The structure has not been determined. Oil is secured from four "porous pays" in the Onondaga and Niagara. Drilling is to a depth of about 410 to 450 feet.



KENTUCKY'S LARGEST FLUSH PRODUCTION WELL  
Jake Moulder, No. 8, Warren County, Ky.

## CHAPTER VII.

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### GEOGRAPHIC DISTRIBUTION OF OIL AND GAS IN KENTUCKY.

Many newcomers as well as natives of the State of Kentucky are unfamiliar with the location of the oil and gas fields of this State, even within general limits. The geography of oil and gas production, and the geography of the probably productive oil and gas strata, are but very slightly clarified in the minds of most people. With the exception of those who have made a special study of the matter (which group, though small and select, includes the highest type of oil operator) most casually interested persons do not understand that there is a vast difference from the standpoint of oil and gas recovery, among the various counties in Kentucky. Unfortunately it is not given to all to see the sound geologic reasons for this differing importance as between various parts of the State.

It is a matter of simple substantiation, however, that this difference does exist and for this reason it becomes important to mark off the various sections. In a broad way the State of Kentucky is divided into seven distinct regions on a basis of geology. These are: (1) The Eastern Coal Field, (2) The Knobs Crescent (enclosing the central Blue Grass), (3) The Central Blue Grass, (4) The Central-Southern Limestone Region, (includes the "Pennyryle"), (5) The Western Coal Field, (6) The Western Faulted, Lead, Zinc and Fluorspar Section, and (7) The Jackson Purchase. Happily the geographic distribution of oil and gas productive strata is quite limited to this division of Kentucky into seven parts. For this reason the use of these divisions facilitates the description of the productive and unproductive areas in the State. Within general limits, four of these regions may be said to be productive or to have productive possibilities. These are: (1) The Eastern Coal Field, (2) The Knobs Crescent, (4) The Central-

Southern Limestone Region, and (5) The Western Coal Field. The other three, the (3) The Central Blue Grass, (6) The Western Faulted Lead, Zinc, and Fluorspar section, and (7) The Jackson Purchase may be classified as very poorly productive, non-productive, or unknown.

A knowledge of the location of any small area within these broader limits of the seven larger divisions of the State will assist the layman in forming some conclusions as to the productive possibilities of the tract in which he is interested. However, to give still greater precision to the many who are interested, each of the one hundred and twenty counties in the State is here taken up separately. General statements concerning its location, aerial geology, physiography, drainage, structural location, and oil and gas development or possibilities are made. These are not exhaustive county reports. The scope of this book disallows all except summary statements, which are intended to be used as an index of present conditions and future possibilities. The counties are arranged below in alphabetical order.

## DISCUSSION OF OIL AND GAS IN KENTUCKY

### ADAIR—No. 1.

LOCATION.—Southern Central Kentucky.

SURFACE GEOLOGY.—Mississippian limestones and shales, Devonian black shale.

PHYSIOGRAPHY.—Dissected plain, low rolling hills.

DRAINAGE.—Russell fork of Green River, Crocus Creek of Cumberland River.

STRUCTURAL LOCATION.—West side of saddle of the Cincinnati anticline. This county contains a number of small structures.

OIL AND GAS DEVELOPMENT.—Oil and gas developments are recent. There are a few small producing wells in the county and considerable drilling is now going forward.

### ALLEN—No. 2.

LOCATION.—Southern-central Kentucky adjoining the Tennessee line.

**SURFACE GEOLOGY.**—Mississippian limestone and shales, Devonian black shale, Onondaga limestone, Silurian (Niagara) limestone.

**PHYSIOGRAPHY.**—Northwestern sloping; plain dissected by entrenched meandering; imperfect drainage with sink holes, in northwestern section.

**DRAINAGE.**—Middle Fork, Trammel Fork, and Bays Fork of Barren River.

**STRUCTURAL LOCATION.**—North side of Nashville dome of Cincinnati arch, normal dip to the northwest. This county has a great many small folds mostly with north-eastern and southwestern axes. Where these folds occur in porous places of the Onondaga limestone and sandy places of the Niagara limestone, oil is generally found in commercial quantities.

**OIL AND GAS DEVELOPMENT.**—An extensive development has taken place in Allen County. There are at present about two hundred rigs at work and not less than two thousand wells have been drilled. The most

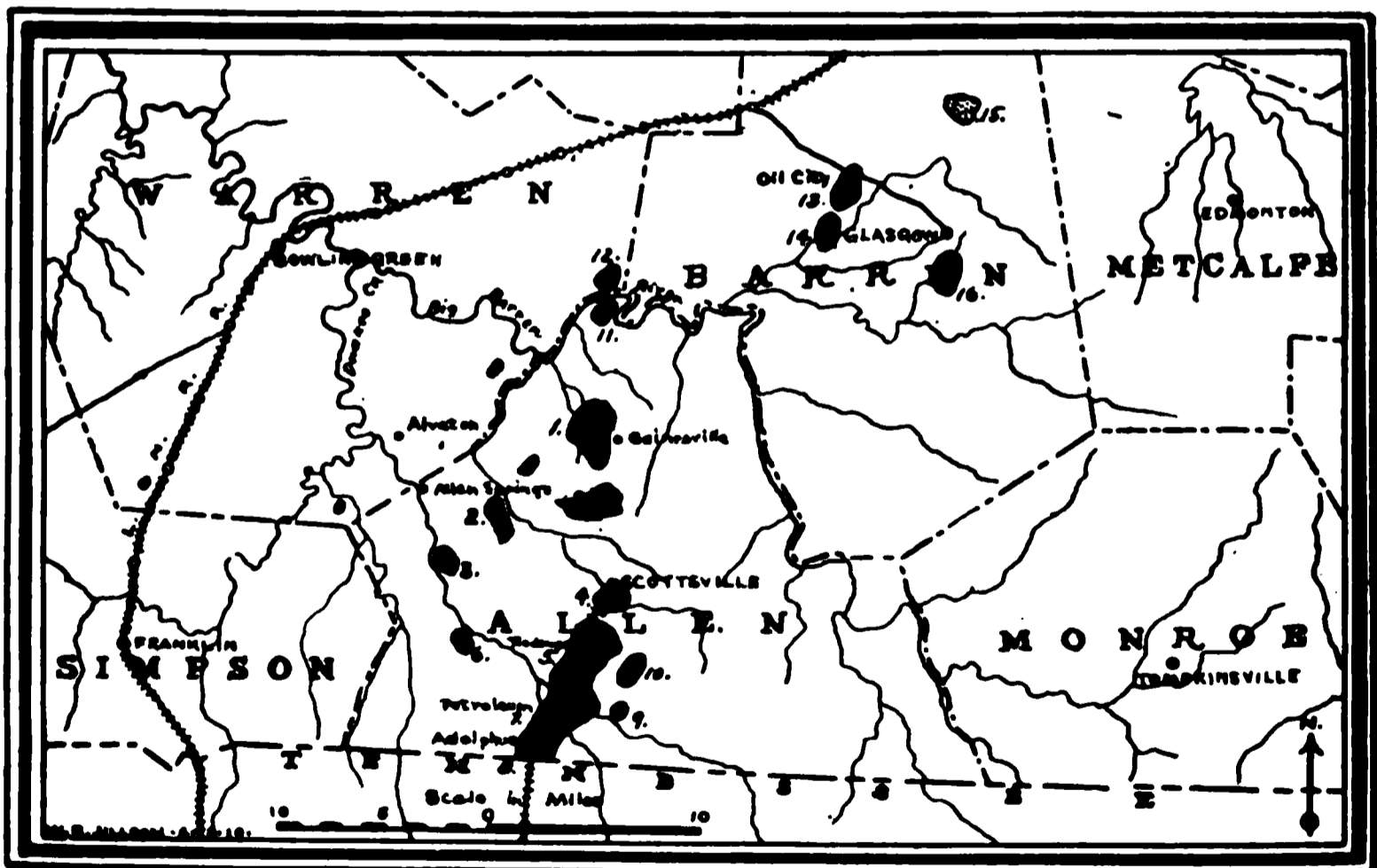


FIG. 1. SKETCH MAP, ALLEN AND ADJOINING COUNTIES.

As shown above the principal Oil and Gas Pools of Allen County are: 1. Gainesville; 2. Bays Fork; 3. Butlersville; 4. Scottsville; 5. Rodemer; 6. Trammel Creek; 7. Petroleum; 8. Adolphus; 9. Rough Creek; 10. East Rodemer; 11. Jewell; 12. Moulder; 13. Oil City; 14. Steffy; 15. Hiseville; and, 16. Oskamp.

important wells of Allen County are in pools at Gainesville, Bays Fork, Butlersville, Scottsville, Rodemer, Trammel Creek, Petroleum, Adolphus, Rough Creek, East Rodemer, Motley, Angie McReynolds and Jewell Bend of the Barren River in the northern part of the county.

Two pipe lines connect with these fields, one from Gainesville pool to Bowling Green, the Bowling Green Pipe Line Co., inc., and the other from Gainesville to Scottsville, the Indian Refining Company. The oil from the southern section of Kentucky is taken out by tank cars over the Louisville & Nashville Railroad. The principal producing territory in Allen County is in the central and western portions. The very eastern portion of Allen County, so far, has not proved productive.

#### ANDERSON—No. 3.

LOCATION.—This is a Blue Grass county, and because of this fact is not important from the standpoint of oil and gas prospecting. There is no oil and gas development work progressing in this county at present.

#### BALLARD—No. 4.

LOCATION.—Ballard County is situated in the extreme western part of the State, adjoining the Ohio and Mississippi Rivers. This county is in the Jackson Purchase section and its oil possibilities, due to lack of development, are unknown.

#### BARREN—No. 5.

LOCATION.—Central-southern Kentucky.

SURFACE GEOLOGY.—Mississippian limestones and shales, in the upland; Devonian shale and limestones in some creek and river bottoms. A few isolated exposures of Silurian limestones occur along the Barren River above and below the mouth of Glovers Creek.

PHYSIOGRAPHY.—Northwestern sloping table land, deeply dissected in southwestern portion.

**DRAINAGE**—Beaver and Skeggs Creeks and other small tributaries of the Barren River.



**SOUTH DIPPING BEDS.**

View is at the spring house on the Dipp farm on the Burkesville road southeast of Glasgow. The photo shows the southern flank of the elongated Anticline. Photo by W. R. Jilson, July 16, 1919.

**STRUCTURAL LOCATION.**—Western flank of the saddle of Cincinnati anticline. This county has a large number of minor antilines, whose major axes lie in a northeast and southeastern direction.

**OIL AND GAS DEVELOPMENT.**—There is considerable new and old development in this county. The producing pools are: Steffey, oil; Oil City, oil; Oskamp, oil; Hiscville, gas. Production is found both in the Onondaga and Niagara limestones. A small amount of oil is found at Oil City in the "stray sand" in the base of the Mississippian limestones.

#### **BATH—No. 6.**

**LOCATION.**—Northeastern-central Kentucky.

**SURFACE GEOLOGY.**—The surface rocks of this county in ascending order are Ordovician limestones, Silurian limestones, Devonian limestones and shales, Mississippian limestones.

important wells of Allen County are in pools at Gainesville, Bays Fork, Butlersville, Scottsville, Rodemer, Trammel Creek, Petroleum, Adolphus, Rough Creek, East Rodemer, Motley, Angie McReynolds and Jewell Bend of the Barren River in the northern part of the county.

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PHYSIOGRAPHY.—Northwestern sloping table land, deeply dissected in southwestern portion.

**DRAINAGE**—Beaver and Skeggs Creeks and other small tributaries of the Barren River.



**SOUTH DIPPING BEDS.**

View is at the spring house on the Dipp farm on the Burkesville road southeast of Glasgow. The photo shows the southern flank of the elongated Anticline. Photo by W. R. Jillson, July 16, 1919.

**STRUCTURAL LOCATION.**—Western flank of the saddle of Cincinnati anticline. This county has a large number of minor anticlines, whose major axes lie in a north-east and southeastern direction.

**OIL AND GAS DEVELOPMENT.**—There is considerable new and old development in this county. The producing pools are: Steffey, oil; Oil City, oil; Oskamp, oil; Hisco-ville, gas. Production is found both in the Onondaga and Niagara limestones. A small amount of oil is found at Oil City in the "stray sand" in the base of the Mississippian limestones.

#### **BATH—No. 6.**

**LOCATION.**—Northeastern-central Kentucky.

**SURFACE GEOLOGY.**—The surface rocks of this county in ascending order are Ordovician limestones, Silurian limestones, Devonian limestones and shales, Mississippian limestones.

**PHYSIOGRAPHY.**—Undulatory topography in the western part of the county; Knobs region in the eastern part of the county.

**DRAINAGE.**—Licking River.

**STRUCTURAL LOCATION.**—Well up on the southeastern flank of the Lexington dome of the Cincinnati anticline. This county contains a number of small structures, principally anticlines.

**OIL AND GAS DEVELOPMENT.**—Bath County contains part of the Ragland oil field, in its southeastern extremity. It also contains the Olympia pool.



**TILTED WAVERLY SHALES, PINEVILLE, KY.**

The view is from the Louisville and Nashville tracks looking toward the northeast. Photo by W. R. Jillson, May 18, 1919.

**BELL—No. 7.**

**LOCATION.**—Southeastern Kentucky, adjoining the Tennessee and Virginia lines.

**SURFACE GEOLOGY.**—Although located in the eastern coal fields, this county is unimportant, due to the amount of sharp folding and faulting, from an oil and gas standpoint. It is located principally in a deep synclinal structure between the Pine and Cumberland Mountains.

**BOONE—No. 8.**

**LOCATION.**—The northernmost section of the State. Adjoins the Ohio River and State lines.

**SURFACE GEOLOGY.**—This county is unimportant from an oil and gas standpoint. The surficial rocks are Ordovician limestones.

**BOURBON—No. 9.**

**LOCATION.**—Central Kentucky.

**SURFACE GEOLOGY.**—Bourbon County is located in the Blue Grass section of the State, and is unimportant from an oil and gas standpoint. The surficial rocks are Ordovician limestones.

**BOYD—No. 10.**

**LOCATION.**—Northeastern Kentucky.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—Dissected table-land and river plain.

**DRAINAGE.**—Eastern fork of the Little Sandy River, and small tributaries of the Big Sandy River and of the Ohio River.

**STRUCTURAL LOCATION.**—Well down on the eastern flank of the Cincinnati anticline. As worked out by the coals there are a number of small structures in this county.

**OIL AND GAS DEVELOPMENT.**—Quite extensive oil and gas developments have been carried forward in this county. A number of old, oil and gas producing wells have been drilled in. There is very little, if any, new work going on in this county, at the present time.

**BOYLE—No. 11.**

**LOCATION.**—Central Kentucky.

**SURFACE GEOLOGY.**—Ordovician limestone, Devonian shales, Mississippian limestones and shales. The Silurian limestones are missing.

**PHYSIOGRAPHY.**—Dissected table-land, in the northern section; Knobs region in the southern-central part.

**DRAINAGE.**—Small tributaries to the Salt and Kentucky Rivers.

**STRUCTURAL LOCATION.**—Southern limb of the Lexington dome of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—A few wells have been drilled for oil and gas in Boyle County but no production has been secured. There is no prospecting going forward now and due to the very limited area covered by the black shale and higher formations it is doubtful if this county will ever produce commercial quantities of either oil or gas.

**BRACKEN—No. 12.**

**LOCATION.**—North-central Kentucky.

**SURFACE GEOLOGY.**—This county adjoins the Ohio River and is unimportant from an Oil and Gas standpoint due to the fact that the unproductive Ordovician Limestones are at the surface.

**BREATHITT—No. 13.**

**LOCATION.**—Central-eastern Kentucky.

**SURFACE GEOLOGY.**—Coal measures of the Pennsylvanian System.

**PHYSIOGRAPHY.**—Dissected northwestern sloping table lands.

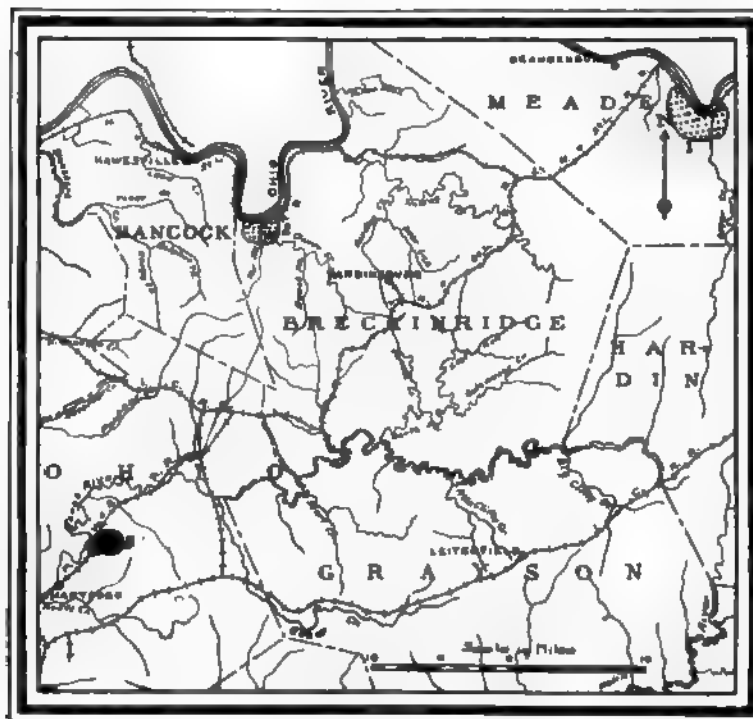
**DRAINAGE.**—North and Middle Forks of the Kentucky River.

**STRUCTURAL LOCATION.**—Breathitt County is bisected by the eastern Kentucky geosyncline. It contains six oil and gas structures. These are anticlines and domes

of small dimension and have been named (1) Frozen Creek anticline, (2) Cope's Fork dome, (3) Quicksand Creek dome, (4) Leatherwood anticline, (5) Lost Creek dome, (6) Jackson anticline.

**OIL AND GAS DEVELOPMENT.**—This county has witnessed considerable oil and gas development within the last three years and a number of wells are now being drilled within its boundaries. Production of oil in small quantities has been proved on the Frozen Creek anticline, Copes Fork dome and Quicksand Creek dome. The greater portion of this county is yet unproved. A number of dry holes have been drilled.

Several million cubic feet of gas have been drilled in in Breathitt County, especially in the northern part.



NORTH-WESTERN KENTUCKY OIL AND GAS FIELDS.

The Meade (1) and Breckinridge (2) county fields produce gas and are old in development. The Ohio (3) county district produces oil.

## BRECKINRIDGE—No. 14.

LOCATION.—Northwestern part of Kentucky, adjoining the Ohio River.

SURFACE GEOLOGY.—Principally Mississippian limestones, and a few outliers of the coal measures.

PHYSIOGRAPHY.—Northwest sloping river plain, in the northwestern part. Rolling hills due to dissection in southern part of the county.

DRAINAGE.—Sinking Creek and other tributaries of the Ohio and North Fork of the Rough River.

STRUCTURAL LOCATION.—This county is well down on the western limb of the Cincinnati arch. It contains one large and a few minor anticlines, which are found with difficulty, due to the heavy mantle of soil.

OIL AND GAS DEVELOPMENT.—A small gas field was developed around Cloverport, on the Ohio River, in 1889. Its production now is not very important. Some rather extended prospecting has been done without important results. The gas production was secured from the Warsaw of the Mississippian System. It was used for domestic consumption in Cloverport, Kentucky.

## BULLITT—No. 15.

LOCATION.—North-central part of Kentucky.

SURFACE GEOLOGY.—The exposed rocks of Bullitt County in ascending order are Ordovician limestones, Silurian limestones, Devonian limestones and shales, and Mississippian limestones.

PHYSIOGRAPHY.—This county is bisected on a north and south line by a Knobs region. The western section is an elevated plain dipping northwestward to the Ohio River.

DRAINAGE.—North Fork and the Main Salt River.

STRUCTURAL LOCATION.—Western limb of the Lexington dome of the Cincinnati arch. This county contains a number of small anticlines which are under a good cover of the black shale and may be considered a good

location for oil and gas prospecting. There has been no important development in this county until the present time. Whether porous or sandy conditions in the limestones will be found is as yet unknown.

**BUTLER—No. 16.**

**LOCATION.**—Central-western Kentucky.

**SURFACE GEOLOGY.**—Mississippian limestone, and coal measures of the Pennsylvanian.

**PHYSIOGRAPHY.**—Generally a low, flat, very maturely dissected plain. Streams are broadly meandering with wide alluvium filled bottoms. The relief is from two hundred to three hundred feet.

**DRAINAGE.**—Green River and tributaries.

**STRUCTURAL LOCATION.**—Down toward central portion of the western coal basin.

**OIL AND GAS DEVELOPMENT.**—This county has been prospected at several points for oil and gas, but without any important results. It is, however, considered worth further and more scientific investigations.

**CALDWELL—No. 16.**

**LOCATION.**—Western Kentucky.

**SURFACE GEOLOGY.**—This county, due to its location in the widely faulted portion of the western Kentucky, may be considered unimportant from a standpoint of oil and gas prospecting. The surficial rocks are the limes and sandy limes of the Mississippian, and the sandstones, shales, and coals of the Pennsylvanian.

**CALLOWAY—No. 18.**

**LOCATION.**—Western Kentucky, adjoining the Tennessee line in the outtheastern portion of the Jackson Purchase.

**SURFACE GEOLOGY.**—Quaternary sands and gravels in the western portion, with exposed Cretaceous and Mississippian sediments in the river and creek valleys of the eastern section. Very little is known about this county,

due to the fact that no drilling has been done here. There is no reason to disbelieve, however, that the producing horizons of Kentucky underlie the surface rocks. The thickness of all sediment in this section is very great. Deep drilling should be one of the primary considerations in prospecting in this section.

CAMPBELL—No. 19.

LOCATION.—North-central Kentucky.

SURFACE GEOLOGY.—This is a Blue Grass county, adjoining the Ohio River and may be considered unimportant from a standpoint of oil and gas prospecting. The surficial rocks are Ordovician limestones.

CARLISLE—No. 20.

LOCATION.—In the extreme western part of the State, adjoining the Mississippi River.

OIL AND GAS DEVELOPMENT.—No prospecting of any record has been done in this county. Its oil and gas importance is for this reason unknown. Surface rocks are composed of quarternary sands, clays and gravels.

CARROLL—No. 21.

LOCATION.—North-central Kentucky, adjoining the Ohio River.

OIL AND GAS DEVELOPMENT.—This county is in the northern part of the Blue Grass section of the State. It is considered unimportant from an oil and gas standpoint, due to the fact that the surface rocks are the unproductive Ordovician limestones of central Kentucky.

CARTER—No. 22.

LOCATION.—Northeastern Kentucky.

SURFACE GEOLOGY.—Principally coal measures of the Pennsylvanian, with the underlying Mississippian limestones and shales, exposed along the river bottoms.

PHYSIOGRAPHY.—Northwest sloping table-land dissected in maturity.

**DRAINAGE.**—Tigert's Creek and Little Sandy River.

**STRUCTURAL LOCATION.**—On the east limb of the Lexington dome of the Cincinnati arch.

**OIL AND GAS PRODUCTION.**—Considerable prospecting for oil and gas has been done in this county and some little production has been secured. No pools of outstanding value have been proved.

**CASEY—No. 23.**

**LOCATION.**—Central Kentucky.

**SURFACE GEOLOGY.**—Principally Mississippian Limestones and shales, with Devonian shales exposed in river bottoms.

**PHYSIOGRAPHY.**—Deeply dissected table-lands.

**DRAINAGE.**—Green River and small tributaries of the Cumberland River on the east and Rolling Fork of the Salt River on the north.

**STRUCTURAL LOCATION.**—South flank of the Lexington dome of the Cincinnati arch. Position between the Lexington dome and Nashville dome.

**OIL AND GAS DEVELOPMENT.**—Some prospecting has been done in this county, but no pools of outstanding importance have been established.

**CHRISTIAN—No. 24.**

**LOCATION.**—West-southern Kentucky, adjoining the Tennessee line.

**SURFACE GEOLOGY.**—Mississippian limestones in the south and central sections and coal measures of the Pennsylvanian System in the extreme northern portion.

**PHYSIOGRAPHY.**—Undulating low table-lands.

**DRAINAGE.**—North and south forks of Sinking Creek of the Little River and tributaries of the Cumberland River, northern tributaries of the Trade Water River.

**STRUCTURAL LOCATION.**—Christian county is on the south limb of the western Kentucky coal basin or syncline.

**OIL AND GAS DEVELOPMENT.**—This county has been prospected to some extent, and production has been secured in very small quantity. No definite pools of importance have been brought in. Active development is now in progress.

**CLARK—No. 25.**

**LOCATION.**—Central Kentucky.

**SURFACE GEOLOGY.**—This is a Blue Grass county, for the most part, though the southeastern extremity extends into the Knobs Region. It has been prospected through the southeastern sections. Very little production has been obtained. No pools of outstanding importance have been proved in Clark County. Surficial rocks are the Ordovician, Silurian, and Devonian limestones and shales.

**CLAY—No. 26.**

**LOCATION.**—Southeastern Kentucky.

**SURFACE GEOLOGY.**—In coal measures of the Pennsylvanian System.

**PHYSIOGRAPHY.**—Maturely dissected north west sloping table-land.

**DRAINAGE.**—Goose Creek, Red River and other minor tributaries of the Kentucky River.

**STRUCTURAL LOCATION.**—This county is bisected by the eastern Kentucky geosyncline. Several small structures have been successfully prospected for both oil and gas.

**OIL AND GAS DEVELOPMENT.**—A number of vigorous drilling campaigns are now going forward in this county, but no large pools of importance have yet been proved. There is reason to believe, however, that both oil and gas will be found in this county in important commercial quantity.

## CLINTON—No. 27.

LOCATION.—Southern Kentucky, adjoining the Tennessee line.

SURFACE GEOLOGY.—Ordovician limestone on Indian Creek in the northern section. In ascending order toward the south are Devonian shales, Mississippian limestones and shales, and outliers of the Pottsville conglomerate of the Pennsylvanian.

DRAINAGE.—Tributaries of the Cumberland River.

STRUCTURAL LOCATION.—This county is located low down on the northeastern dip of the Nashville dome of the Cincinnati arch.

OIL AND GAS DEVELOPMENT.—Though Clinton County adjoins the oil and gas pools of Wayne County, on the eastern part, no recent production of importance has been proved within its boundaries.

## CRITTENDEN—No. 28.

LOCATION.—Located in the greatly faulted lead, zinc, and fluorspar section of western Kentucky.

SURFACE GEOLOGY.—This county is considered of no importance, from the standpoint of oil and gas development. The surface rocks are principally the limestones of the Mississippian. Pennsylvanian sandstones, shales, and coals overlap the northeastern border. River alluvium of recent deposit blankets the northwestern border. There are a few isolated outlines of the coal measures scattered across the country.

## CUMBERLAND—No. 29.

LOCATION.—Southern-central Kentucky, adjoining the Tennessee line.

SURFACE GEOLOGY.—In the bottoms of the Cumberland River, upper Ordovician limestone is exposed. The Devonian shale and Mississippian limestone are found in ascending order over the rest of the county.

PHYSIOGRAPHY.—The central portion of this county is a river plain which runs back to the steep sloping

hills and rolling country in the extreme north and southeastern portions of the county.

**DRAINAGE.**—Cumberland River and its tributaries.

**STRUCTURAL LOCATION.**—This county is located on the northeastern flank of the Nashville dome of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—There are within this county, a number of small anticlines of which the major axes cross the Cumberland River. These small structures may be seen on the cliffs on either side. This county is one of the oldest to produce oil and gas in the State. Oil was struck in 1828, in what is now called the Great American Well. This well is located near Burkesville, and was drilled by salt water prospectors. Since that time scattered production of considerable value has been developed in the various parts of this county especially those adjoining the Cumberland River. There is, at present, a growing interest looking toward the rejuvenation of these pools. Many of the old wells have been cleaned out, redrilled, and in some portions deeper drilling has been attempted. The oil of this county is very close to the lowest horizon in the State. Stratigraphically the county is the lowest extensively producing oil horizon in the world.

#### DAVIESS—No. 30.

**LOCATION.**—Northwestern part of the State, adjoining the Ohio River.

**SURFACE GEOLOGY.**—This county is located in the northern portion of the western coal field. It is synclinal for the most part and is not considered of importance for oil and gas prospecting. Daviess has had very little development and has no commercial production.

#### EDMONSON—No. 31.

**LOCATION.**—Central-western Kentucky.

**SURFACE GEOLOGY.**—Coal measures of the western coal fields in the northwest, Mississippian limestones in the southeastern part of the county.

**PHYSIOGRAPHY.**—Low rolling erosive hills in the Pottsville, in the northwest; gentle undulation in the southeast.

**DRAINAGE.**—Green and Nolin Rivers and their tributaries.

**STRUCTURAL LOCATION.**—On the western limb of the Cincinnati anticline, and on the eastern dip of the western coal basin.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled. Prospecting for oil and gas is now going forward with renewed energy. Small index production of importance has been secured. Asphalt deposits are found in this county. It seems probable that future prospecting will show that oil and gas pools of importance are located in Edmonson County.

#### ELLIOTT—No. 32.

**LOCATION.**—Northeastern Kentucky.

**SURFACE GEOLOGY.**—Elliott County is in the eastern coal field. Its surface rocks are in the Pottsville group, with the exception of Mississippian limestones, in the bottom of Big Sinking Creek in the northwest, and the intruded peridotite dikes in the central portion.

**PHYSIOGRAPHY.**—Dissected in maturity northwest sloping table-land.

**DRAINAGE.**—Little Sandy River and its tributaries.

**STRUCTURAL LOCATION.**—Intermediate position on the eastern limb of the Cincinnati anticline. There are pronounced minor structures and faults in this county.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled in this county, in testing for oil and gas. Several of the wells have produced gas in a large quantity, and a few, producing oil in small quantity, have been found.

**ESTILL—No. 33.**

**LOCATION.**—Central-eastern Kentucky.

**SURFACE GEOLOGY.**—The surficial rocks of this county are composed, in ascending order, of Ordovician and Silurian limestones and shales; Devonian limestones and shales, Mississippian limestones and shales, and outliers of the Pottsville conglomerate, which form the ridges.



**PIPE LINE STATION, ESTILL COUNTY, KENTUCKY.**

This station, which is located near Millers Creek, was constructed during the past year by the Cumberland Pipe Line Company to facilitate the handling of the crude oil production of this part of the field. Photo by W. R. Jillson, 1918.

**PHYSIOGRAPHY.**—Knobs, and a table-land, dissected in great maturity.

**DRAINAGE.**—Kentucky River and its tributaries.

**STRUCTURAL LOCATION.**—High up in the eastern flank of the Lexington dome of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—Estill County is one of the most important in Kentucky from an oil and gas standpoint. It first gave small productions lying along and above the outcrop line of the Devonian black shale. The first light green oil pools in this section of Ken-

tucky became known as Irvine, Ravenna and the Irvine Extension Pools. These pools opened the way for the drilling of the Ashley, Station Camp, Ross Creek, Big Sinking and associated pools to the East and South. There have probably been more wells drilled in Estill County than any other county in the State of Kentucky. There are at present a very large number of drillings and redrillings going on in this county. The Irvine pool, Station Camp, Ross Creek, and Millers Creek, which are the best known in this section of this State, are listed wherever Kentucky is recognized as an oil state. The Cumberland Pipe Line Company serves Estill County.

FAYETTE—No. 34.

LOCATION.—This is a central Blue Grass county, and as such is unimportant from an oil and gas standpoint. The surficial rocks are upper and lower Ordovician limestones which have been proved unproductive.

FLEMING—No. 35.

LOCATION.—Northeastern Kentucky.

SURFACE GEOLOGY.—The surface rocks of this county are principally Ordovician and Silurian limestones. Mississippian sediments in the east overlies a narrow strip of Devonian limestones and shales.

OIL AND GAS DEVELOPMENT.—Very little development work has been carried on in this county. No production of importance has been secured.

FLOYD—No. 36.

LOCATION.—Eastern Kentucky.

SURFACE GEOLOGY.—This county shows only coal, sandstones and shales of the Pottsville series.

PHYSIOGRAPHY.—North-westward sloping table-lands, dissected in maturity with relief of about six hundred feet.

DRAINAGE.—Big Sandy River and its tributaries, Johns, Beaver and Middle Creeks.



**STRUCTURAL LOCATION.**—Floyd County is located in the eastern geosyncline, which passes through it from the southern tip of Magoffin County, and on east through the northern part of Pike County. There are four pronounced minor structures in Floyd County. These are: the Beaver Creek anticline, the Bull Creek anticline, the Prestonsburg anticline, and the Mud Creek anticline. Synclinal oil is produced in the old Beaver Creek oil pool at Bosco on Right Beaver Creek. The initial production was drilled in on the Howard farm at Bosco in the year 1891. Oil has also been developed on Middle Creek, near Prestonsburg. Gas has been developed in large quantities on the Beaver Creek, and Bull Creek anticlines. It is proposed to commercialize this gas by the extension of a new eight-inch pipe line to the Louisville Gas and Pump Line in Johnson County.

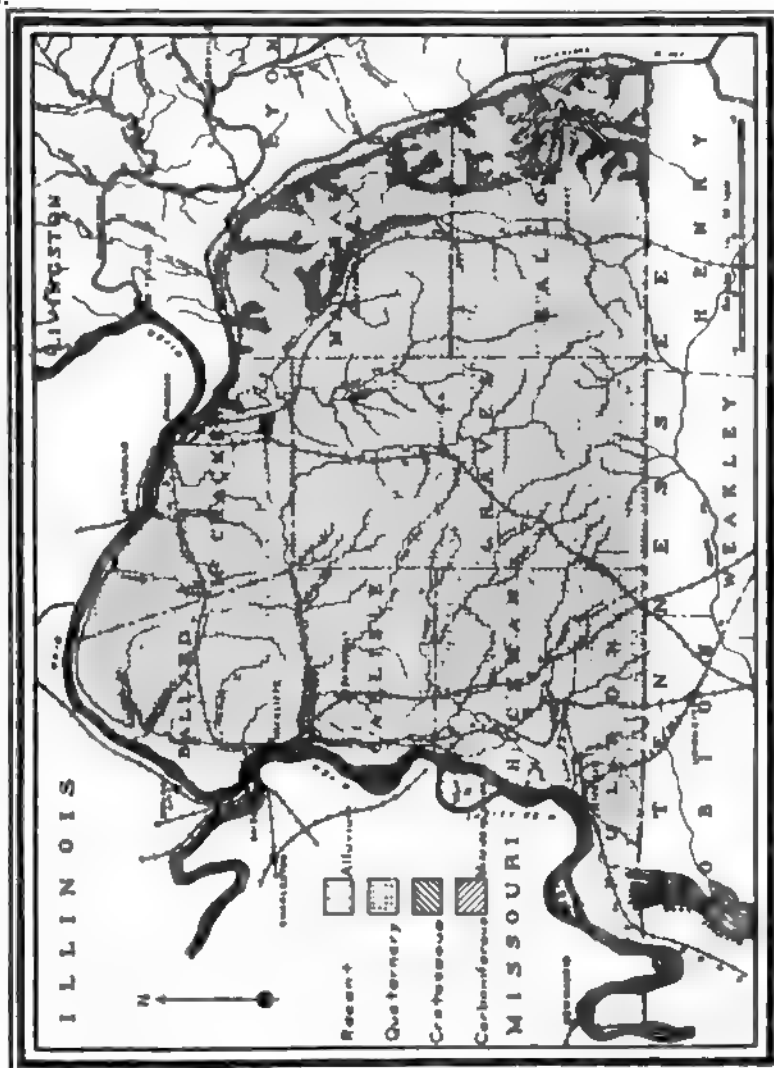
#### FRANKLIN—No. 37.

**LOCATION.**—This is a central Blue Grass county, and therefore is unimportant from the standpoint of oil and gas. A small amount of gas was secured in this county, in the Ordovician rocks near Frankfort, but the production was not found to be in commercial quantity. The surface rocks are the upper and lower Ordovician limestones which in this part of the State have been proved unproductive.

#### FULTON—No. 38.

**LOCATION.**—Extreme southwest section of the State of Kentucky in the Jackson Purchase, adjoining the Mississippi River.

**OIL AND GAS DEVELOPMENT.**—A heavy mantle of Cenozoic embayment deposits covers the entire surface of this county. Underlying it occur cretaceous and Mississippian limestones. No developments have been carried on in this county and therefore little is known concerning its oil and gas possibilities.



**THE JACKSON PURCHASE REGION OF KENTUCKY**  
 The one region in the whole state that is practically yet untested. All of the known producing formations of Kentucky lower than the Pottsville are here deep below the surface.

## GALLATIN—No. 39.

LOCATION.—Northern-central portion of the State. This is a Blue Grass county and is therefore considered of little importance for oil and gas prospecting. The surface rocks are the unproductive Ordovician limestones.

## GARRARD—No. 40.

LOCATION.—This is a Central Blue Grass county and is unimportant from the standpoint of oil and gas. The surface rocks are the unproductive Ordovician limestones.

## GRANT—No. 41.

LOCATION.—Central Blue Grass county, and therefore is unimportant from an oil and gas standpoint. The surface rocks are the unproductive Ordovician limestones.

## GRAVES—No. 42.

LOCATION.—Graves county lies in the Jackson Purchase, in the western part of Kentucky.

SURFACE GEOLOGY.—The surficial rocks are quaternary sands and gravels and clays.

OIL AND GAS DEVELOPMENT.—One well is being drilled in Graves County. The possibilities of oil and gas accumulation are very uncertain.

## GRAYSON—No. 43.

LOCATION.—Central-western Kentucky.

SURFACE GEOLOGY.—The areal geology of this county consists of Mississippian limestone, in the north and eastern sections of the county, with the Pottsville conglomerate in the south and western sections.

PHYSIOGRAPHY.—The surface is rugged, with rather high hills caused by dissection of the Pottsville.

DRAINAGE.—The Nolin and Rough Rivers and their tributaries drain Grayson County.



**"MAJOR SAND" OIL OF GRAYSON COUNTY.**

Three storage tanks, filled with green oil from wells on the Major and Moffitt farms, Grayson County, Ky. The storage and the producing wells are the property of Carl K. Dresser. The Major and Moffitt farms are seven miles west of Leitchfield, Kentucky. Photo by W. R. Jillson.

**STRUCTURAL LOCATION.**—This county is located down on the west limb of the Cincinnati arch on the eastern edge of the western coal basin. The county is bisected on an east and west line by the Rough Creek Fault and anticline.

**OIL AND GAS DEVELOPMENT.**—Fifteen or twenty wells have been drilled in Grayson County. Some of these secured oil, some gas and some artesian water. Three or four were dry. The oil and gas production is fairly large and of commercial value. Considerable drilling is now in progress. The Leitchfield gas field, surrounding the town of the same name, is now producing about three million cubic feet of gas a day. About the same amount of gas has been developed at Meridith.

**GREEN—No. 44.**

**LOCATION.**—South-central Kentucky.

**SURFACE GEOLOGY.**—The surficial rocks are Mississippian limestone and shales.

**PHYSIOGRAPHY.**—Rolling to rugged.

**DRAINAGE.**—Green River and its tributaries.

**STRUCTURAL LOCATION.**—Western flank of the saddle of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—An active campaign of oil and gas drilling is now in progress and quite a number of wells have been drilled in Green County. Some of these are producing a little oil and considerable gas. There is one proved gas pool of commercial value in this county just northeast of Greensburg. Individual wells are estimated to give 1,000,000 cubic feet per day at the maximum flow.

#### GREENUP—No. 45.

**LOCATION.**—Northeastern Kentucky, adjoining the Ohio River.

**SURFACE GEOLOGY.**—The surface rocks of Greenup county are Mississippian limestones, and Pottsville coals, sandstones and shales.

**DRAINAGE.**—Little Sandy River, Tigerts Creek, and its tributaries.

**STRUCTURAL LOCATION.**—Greenup county occupies an intermediate position on the east flank of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—A considerable number of wells have been drilled. Some oil and gas has been secured, but to date, no wells of importance have been drilled.

#### HANCOCK—No. 46.

**LOCATION.**—Northwestern Kentucky.

**SURFACE GEOLOGY.**—The surficial rocks of this county are those of the Pottsville. The single exception to this inclusive statement is found in the Mississippian limestones which are exposed along a narrow strip on the eastern border.

**OIL AND GAS DEVELOPMENT.**—Although this county is close to the old Cloverport gas field, no important oil and gas developments have been made.

**HARDIN—No. 47.**

**LOCATION.**—Western-central Kentucky.

**SURFACE GEOLOGY.**—This county shows Mississippian limestones on the surface except in a very small section along the Salt River on the northeast boundary. Here Devonian and Silurian sediments outcrop.

**OIL AND GAS DEVELOPMENT.**—A number of oil wells have been drilled in this county but no production has been secured.

**HARLAN—No. 48.**

**LOCATION.**—Southeastern Kentucky.

**OIL AND GAS DEVELOPMENT.**—This county lies between Pine and Cumberland Mountains and therefore is unimportant from the standpoint of oil and gas prospecting.

**HARRISON—No. 49.**

**LOCATION.**—This is a Blue Grass county, and is therefore unimportant from the standpoint of oil and gas investigation. Ordovician limestones are at the surface.

**HART—No. 50.**

**LOCATION.**—Western-central Kentucky.

**SURFACE GEOLOGY.**—Surface rocks of this county are the Mississippian limestones, with a small extension of the Pottsville conglomerate, in the western portion of the county.

**PHYSIOGRAPHY.**—Surface of this county is rolling to rugged.

**DRAINAGE.**—Green and Nolin Rivers.

**STRUCTURAL LOCATION.**—On the west limb of the Cincinnati arch opposite the saddle. Several small structures exist in Hart County. One of them located north of Munfordville has been tested with a dry hole.

**OIL AND GAS DEVELOPMENT.**—This county contains a number of small folds, which have not been tested. To date no oil or gas discoveries of importance have been made.

## HENDERSON—No. 51.

LOCATION.—Northwestern Kentucky, adjoining the Ohio River.

OIL AND GAS DEVELOPMENT.—This county is in the lower portion of the western coal basin and to date has given no indications of oil and gas in commercial quantities.

## HENRY—No. 52.

LOCATION.—This is a central Blue Grass county, and is therefore unimportant from an oil and gas standpoint. Ordovician limestones are the surface rocks.

## HICKMAN—No. 53.

LOCATION.—This county adjoins the Mississippi River, in the southwest portion of the Jackson Purchase.

OIL AND GAS DEVELOPMENT.—No development of any record has been carried forward in this county and its oil and gas possibilities are unknown.

## HOPKINS—No. 54.

LOCATION.—Southwest portion of western Kentucky coal fields.

OIL AND GAS DEVELOPMENT.—This county adjoins the highly faulted section of western Kentucky. Although the oil and gas strata of eastern Kentucky are present here, it is not thought either of these hydrocarbons will be recovered in important commercial quantities.

## JACKSON—No. 55.

LOCATION.—On the western edge of the eastern coal field, centrally located.

SURFACE GEOLOGY.—Principally, the Pottsville conglomerate of the Pennsylvanian. The upper Mississippian limestone and shales are exposed on the head of Indian Creek, Clover Bottom, Horse Creeks and also on the South Fork of Station Camp Creek.

**PHYSIOGRAPHY.**—Rugged to Rough. Dissected west edge of the coal measures.

**DRAINAGE.**—Middle and South Forks of the Rockcastle Rivers, and South Fork of Station Camp Creek of the Kentucky River.

**STRUCTURAL LOCATION.**—Middle position, east flank of the Cincinnati arch. There are a very few minor structures in this county. The county is principally a gentle monocline.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been sunk at different points in this county, but production of commercial importance has not been secured except on the lower waters of Station Camp and Ross Creeks. These pools are really across the county line in Estill.

#### JEFFERSON—No. 56.

**LOCATION.**—Western part of Kentucky, adjoining the Blue Grass section, and Ohio River.

**SURFACE GEOLOGY.**—Ordovician limestones, Silurian limestones, Devonian limestones and shales, and Mississippian limestones, comprise the surface rocks of this county.

**PHYSIOGRAPHY.**—Undulation in the east due to dissection. Knobs in the western portion of the county.

**DRAINAGE.**—Floyds Creek and small tributaries of the Ohio River.

**STRUCTURAL LOCATION.**—High up on the western flank of the Lexington dome of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—Some little prospecting has been going forward in the southwestern portion of this county where a number of minor folds are known to exist. No production has been proved to date.



**A BLUE GRASS DRILLING.**

This well on the Wm Hoover farm just south of Nicholasville in Jessamine County, had shown no oil or gas at 2,500 feet but drilling was continued. The rocks penetrated by the bit were Ordovician Limestones chiefly. The lower record has not been studied. Photo by W. R. Jilison, 1919.

## JESSAMINE—No. 57.

LOCATION.—This county is located on the pinnacle area of the Lexington dome. Lower Ordovician limestones are exposed at the surface, and at Brooklyn Bridge over the Kentucky River the lowest stratigraphic sediments in the State of Kentucky are exposed. A well, now twenty-five hundred feet deep and still drilling, is located a quarter mile south of Nicholasville. This well has not shown oil or gas to date but has unlimited quantities of fresh water. Jessamine County is considered a typical example of the non-productive Blue Grass area of this State.

## JOHNSON—No. 58.

LOCATION.—Eastern Kentucky.

SURFACE GEOLOGY.—Coal measures.

PHYSIOGRAPHY.—Plateau dissected in maturity.

DRAINAGE.—Paint Creek and other small tributaries of the Levisa Fork of the Big Sandy River.

STRUCTURAL LOCATION.—Johnson County is crossed by the Irvine-Paint Creek fault and fold on an east-west line through its central portion. The western extremity of this county is located on the well known Paint Creek uplift, which has a north and south trend. The Paint Creek dome, Laurel Creek dome, and Paint Creek anticline are the chief sub-structures of importance in the county.

OIL AND GAS DEVELOPMENT.—A large amount of development has gone forward in this county, but oil production has not been proved in large commercial quantity. However, many widely scattered small oil wells are to be found in Johnson County. Both the Paint Creek and Laurel Creek domes have developed gas in large quantities. This gas totaling altogether, at the present, about fifteen million cubic feet daily is going into the Central Kentucky Natural Gas Pipe Line, and the Louisville Gas and Electric Pipe Line. It is very probable that this county will, with farther prospecting, become an important oil producer.

**KENTON—No. 59.**

**LOCATION.**—This county is located in the northernmost section of the Blue Grass and is considered unfavorable for oil and gas development. The surface rocks are the unproductive Ordovician limestones.

**KNOTT—No. 60.**

**LOCATION.**—Southeastern Kentucky.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—Tributaries of the Levisa Fork of the Big Sandy River and North Fork of the Kentucky River.

**STRUCTURAL LOCATION.**—This county is located just south of the eastern Kentucky geosyncline on the flank of the Pine Mountain uplift. There are a number of small structures and domes in this county. The chief of these is the Yellow Mountain anticline, which starts in the easternmost tip of Breathitt County on the Spring Fork of Quick Sand Creek and rises to the southeast in Knott County until on the heads of Jones Fork of Right Beaver Creek it merges into the normal monoclinal slope to the northwest.

**OIL AND GAS DEVELOPMENT.**—Both oil and gas are secured in this county. Gas is now being produced from the sand inclusion in the Big Lime on the Yellow Mountain structure on Rock Fork. Oil is being produced on the monoclinal slope on Dry and Caney Creeks of Right Beaver Creek.

**KNOX—No. 61.**

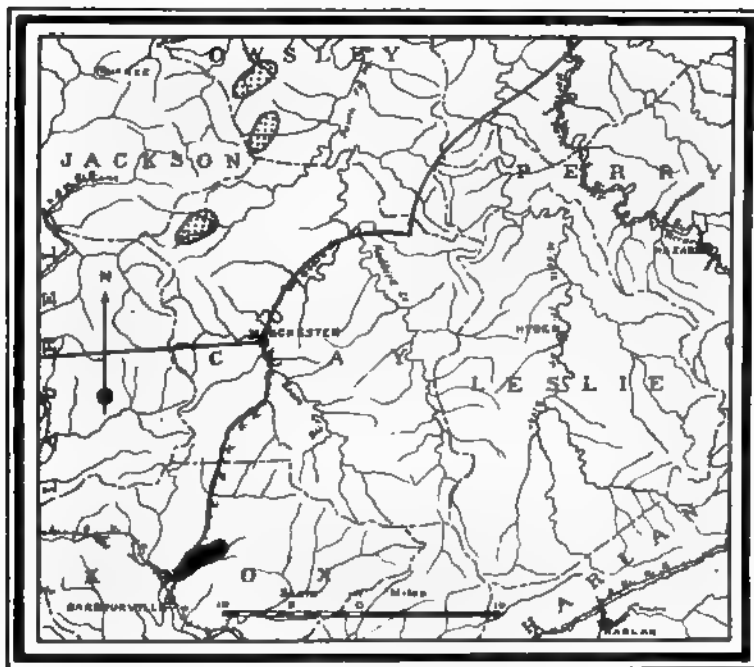
**LOCATION.**—Southeastern Kentucky.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—Cumberland River and its tributaries.

**STRUCTURAL LOCATION.**—Knox County is bisected by the eastern Kentucky geosyncline. There are a number of minor faults and folds in this county and they are always important oil and gas considerations. The folds begin to become more pronounced and are faulted as the Bell County line is approached.



#### OIL AND GAS OF SOUTH-EASTERN KENTUCKY.

This map shows the location of the gas fields of Clay and Owsley counties now being developed, and the older oil field north of Barbourville in Knox County.

**OIL AND GAS DEVELOPMENT.**—Knox County contains one of the oldest producing fields in the state of Kentucky. A large number of small producing wells are located on Little Richmond and Indian Creeks. Three sands produce in the Pottsville conglomerate. These are the Wages, Jones and Epperson. Very little drilling has been done below the Pottsville and the productivity of the underlying formations is practically unknown. Deep drilling is not advised for this section.

## LARUE—No. 62.

LOCATION.—Central Kentucky.

SURFACE GEOLOGY.—Devonian limestones and shales, and Mississippian limestones cover the entire county with the exception of the small areas of the Silurian which are found in the bottom of Rolling Fork.

PHYSIOGRAPHY.—Knob section in the northeast, high rolling in the central and western portions of the county.

DRAINAGE.—Rolling Fork of the Salt River.

STRUCTURAL LOCATION.—Southwestern flank of the Lexington dome of the Cincinnati arch. A minor anticlinal structure bisects this county near Hodgenville. It is probably a continuation of the structure at Leitchfield in Grayson County.

OIL AND GAS DEVELOPMENT.—Some little prospecting is going forward in this county, but to date no production of commercial importance has been proved.

## LAUREL—No. 63.

LOCATION.—Southeastern Kentucky.

SURFACE GEOLOGY.—Coal measures.

PHYSIOGRAPHY.—Northwest sloping plateau dissected in maturity.

DRAINAGE.—Laurel and Rockcastle Rivers and their tributaries.

STRUCTURAL LOCATION.—Low down on the eastern flank of the Cincinnati arch.

OIL AND GAS DEVELOPMENT.—Some little prospecting is going forward in Laurel County but oil and gas in commercial quantities have not been obtained.



View on the George Booth farm in Lee County, Kentucky. This property is being operated by the Quaker Oil Co. Photo  
by W. R. Jillson, March, 1919.

## LAWRENCE—No. 64.

LOCATION.—Northeastern Kentucky.

SURFACE GEOLOGY.—Coal measures.

PHYSIOGRAPHY.—Plateau dissected in maturity.

DRAINAGE.—Levisa and Tug Forks of the Big Sandy River. Dry Fork of the Little Sandy River.

STRUCTURAL LOCATION.—Principally, synclinal to the east of the Paint Creek uplift and to the north of the Paint Creek-Warfield anticlines. These structures are approached in Lawrence county by strong monoclinal folds on which occur many minor productive structures.

OIL AND GAS DEVELOPMENT.—Four oil and gas pools of established reputation are found in Lawrence County; they are the Fallsburg, Busseyville, George's Creek, and Laurel Creek pools, the last, a pool of recent development which overlaps into Johnson County. Production is secured from the Wier and Berea sands of the Mississippian System. Oil production of this county is served by the Cumberland Pipe Line.

## LEE—No. 65.

LOCATION.—Eastern Kentucky.

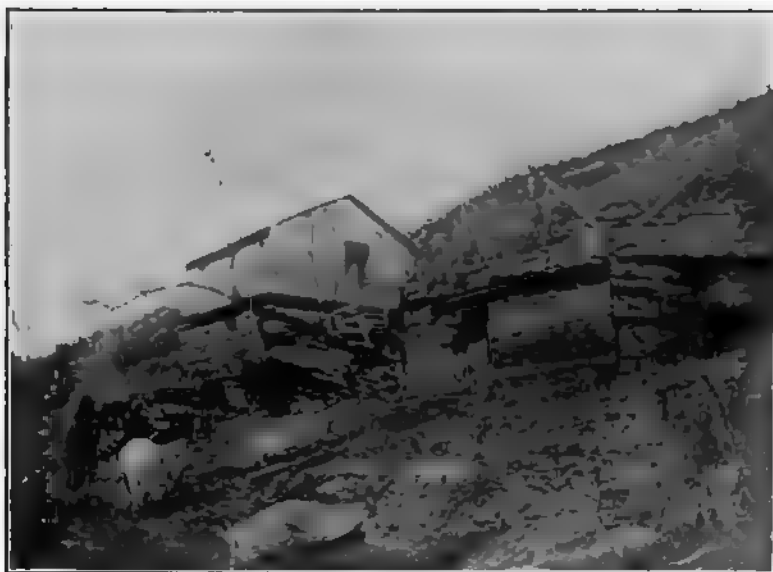
SURFACE GEOLOGY.—Coal measures, except in the Kentucky River bottoms, and the northwestern section which shows Mississippian limestones.

PHYSIOGRAPHY.—Plateau dissected in maturity and rugged to rough.

DRAINAGE.—Kentucky River and its tributaries.

STRUCTURAL LOCATION.—High on the eastern flank of the Lexington dome of the Cincinnati arch. This county contains many small anticlines and domes.

OIL AND GAS DEVELOPMENT.—Lee County contains the Big Sinking oil pool which is the largest and best known oil pool in the state of Kentucky. It also contains a number of other small pools. The oil production is



#### THE HELPING HAND OF NATURE

In a poor farming country Mother Nature frequently makes adjustment. Besides carving out this rock barn on Big Sinking Creek in Lee County, she provided immense oil wealth under the surface.

served by the Cumberland Pipe Line, and Kentucky River Towing Company. The Indian Pipe Line Company, several small local refineries, and the Standard Oil Refining Company of Louisville, Kentucky, are served by short lines or by tank cars. Production is secured from the Onondaga (Corniferous) limestone and in some wells from the underlying Niagara limestone.

#### LESLIE—No. 66.

**LOCATION.**—Southeastern Kentucky.

**SURFACE GEOLOGY.**—This county is on the northeastern flank of the Pine Mountain uplift in the eastern coal field.

**OIL AND GAS DEVELOPMENT.**—Very little prospecting is going on in this county, and no production of importance has been secured.

## LETCHER—No. 67.

LOCATION.—This county is bisected by the Pine Mountain fault, and is therefore unfavorable to oil and gas prospecting.

## LEWIS—No. 68.

LOCATION.—Northeastern Kentucky, adjoining the Ohio River.

SURFACE GEOLOGY.—Principally, Mississippian limestones, with a small exposed area of the underlying Devonian and Silurian sediments.

PHYSIOGRAPHY.—Plateau dissected in maturity.

DRAINAGE.—Kinniconick and Salt Creeks of the Ohio River.

STRUCTURAL LOCATION.—Middle position of the eastern flank of the Cincinnati anticline.

OIL AND GAS DEVELOPMENT.—A considerable number of wells have been drilled in Lewis County. They produce from five to ten barrels of crude oil. No production of outstanding importance is on record.

## LINCOLN—No. 69.

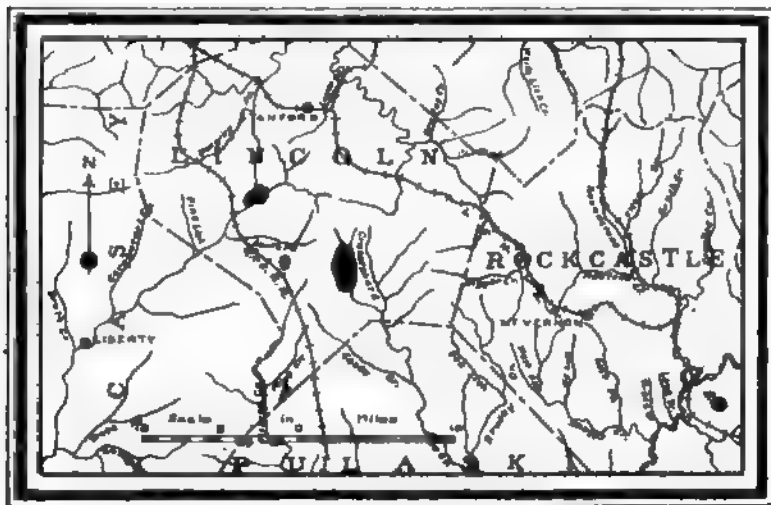
LOCATION.—Central Kentucky.

SURFACE GEOLOGY.—Ordovician limestones, Silurian limestones, Devonian limestones and shales, Mississippian limestones.

PHYSIOGRAPHY.—Rolling to rough.

DRAINAGE.—Tributaries of the Dix and Green Rivers, and Buck and Pine Lick Creeks of the Cumberland River.

STRUCTURAL LOCATION.—On the south nose of the Lexington dome of the Cincinnati arch.



LINCOLN COUNTY OIL POOLS.

**OIL AND GAS DEVELOPMENT.**—This county contains two oil and gas pools of commercial importance, one on Buck Creek and the other on Green River. Both of these are small pools with a steady production. A pipe line connects the Buck Creek pool at King's Mountain to tank car station on the Q. & C. Railroad. Considerable development is going forward in this county, principally, in the southern section of the county, where thick covering is assured for the Onondaga limestone.

#### LIVINGSTON—No. 70.

**LOCATION.**—This county is located in the faulted section of the western part of Kentucky, adjoining the Ohio River, and is therefore unimportant from a standpoint of oil and gas prospecting. Recent river alluviums, Pennsylvanian outlyers, and Mississippian limestones are the surface rocks.

#### LOGAN—No. 71.

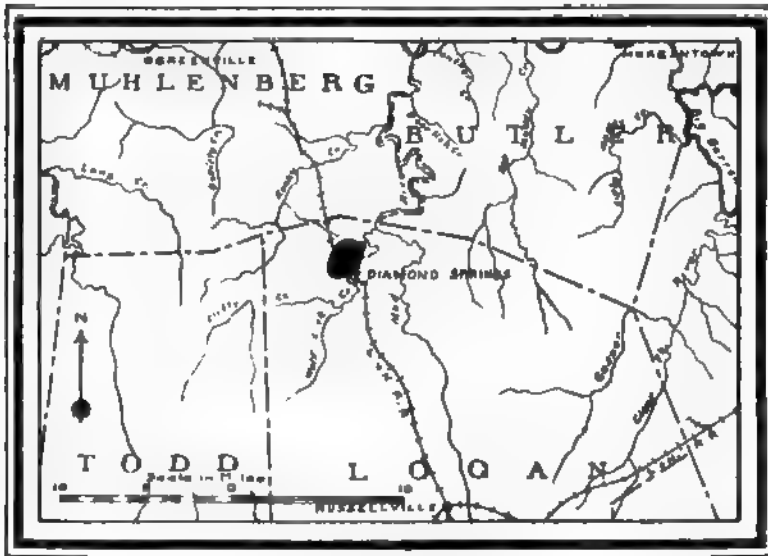
**LOCATION.**—Southwestern Kentucky, adjoining the Tennessee line.

**SURFACE GEOLOGY.**—Mississippian limestones in the south-central section; coal measures in the northwestern corner.

**PHYSIOGRAPHY.**—Rolling, except in the northwestern section where topography becomes rugged, due to the coal measures.

**DRAINAGE.**—Tributaries of the Green and Cumberland Rivers.

**STRUCTURAL LOCATION.**—South limb of the western coal basin. A small antiline may be seen at Epley Station.



THE DIAMOND SPRINGS GAS FIELD.

**OIL AND GAS DEVELOPMENT.**—The Diamond Springs gas pool is located in the northwestern section of this county, close to the Muhlenberg line. Production is secured on a strong monoclinical dip to the north. There is considerable development going on in this county, but no oil wells of commercial importance have been secured.

#### LYON—No. 72.

**LOCATION.**—This county is located in the southwestern part of Kentucky, in the faulted section, and is therefore considered unfavorable to oil and gas prospecting. Mississippian limestones are the surficial rocks.

**MADISON—No. 73.**

**LOCATION.**—This county is principally a Blue Grass section, located in the central portion of the State.

**SURFACE GEOLOGY.**—The southeastern portion of the county is in the knobs section, where the producing oil sand of this part of Kentucky is found at shallow depth. No production, however, of striking importance has been found. Ordovician, Silurian, Devonian, Mississippian, and Pennsylvanian sediments outcrop.

**MAGOFFIN—No. 74.**

**LOCATION.**—Eastern Kentucky.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—Dissected northwest sloping plateau.

**DRAINAGE.**—Licking River.

**STRUCTURAL LOCATION.**—Magoffin county is crossed in its northern extremity by the Irvine-Paint Creek fault and fold, and on the northwestern boundary by the Paint Creek uplift. It contains a number of small structures, important from the standpoint of oil and gas prospecting. Its southern extremity is crossed by the eastern Kentucky geosyncline. The important substructures are: The Paint Creek dome, Rockhouse anticline, White Oak anticline, Johnson Fork anticline and Ivyton dome.

**OIL AND GAS DEVELOPMENT.**—A considerable amount of oil and gas development has gone forward in Magoffin County. Production is proved on the Paint Creek dome, the White Oak anticline and the Ivyton dome. The producing sands are the Pottsville of the Pennsylvanian System, Wier of the Mississippian System and the Onondaga (Corniferous) of the Devonian. Recent developments point to the conclusion that the Wier sand will be a very important producer of oil in this county.

**MARION—No. 75.**

**LOCATION.**—This is essentially a Blue Grass county. It offers but a very small area, except in its southernmost section, favorable to oil and gas prospecting. Ordo-

vician, Silurian, Devonian, and Mississippian limestones and shales are the rocks found at the surface.

**OIL AND GAS DEVELOPMENT.**—Very little prospecting has been done in this county.

**MARSHALL—No. 76.**

**LOCATION.**—Marshall County is located in the Tennessee River bend section of the Jackson Purchase. Quaternary, cretaceous, and Mississippian sediments outcrop.

**OIL AND GAS DEVELOPMENT.**—Its oil and gas possibilities are unknown, due to lack of development.

**MARTIN—No. 77.**

**LOCATION.**—Easternmost Kentucky.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—Tug Fork of the Big Sandy River.

**STRUCTURAL LOCATION.**—Bisected by the Warfield anticline on an east-west line.

**OIL AND GAS DEVELOPMENT.**—The outstanding proved gas pool of importance is the Inez or Martin County gas field, which occupies a crestal position on the Warfield anticline. Gas is secured from the Big Lime and Big Injun sands. A number of small oil wells have been drilled in this county, principally in connection with gas prospecting. No separate oil pools of importance have been established to date.

**MASON—No. 78.**

**LOCATION.**—This is a Blue Grass county, and is, therefore, unimportant from an oil and gas standpoint. Ordovician limestones are the principal surficial rocks.

**MCCRACKEN—No. 79.**

**LOCATION.**—This county adjoins the Ohio River in the northern part of the Jackson Purchase in the western

part of Kentucky Quaternary and cretaceous sediments are found at the surface.

**OIL AND GAS DEVELOPMENT.**—Very little oil and gas development has gone forward in this county.

**McCREARY—No. 80.**

**LOCATION.**—Southern Kentucky, adjoining the Tennessee line.

**SURFACE GEOLOGY.**—Coal measures in the upland; Mississippian limestones in the river bottoms.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—South Fork of the Cumberland River.

**STRUCTURAL LOCATION.**—Just northwest of the eastern Kentucky geosyncline.

**OIL AND GAS DEVELOPMENT.**—McCreary County is the seat of the first oil well in the state of Kentucky. The well was struck on South Fork of the Cumberland River in 1819 by Martin Beatty, of Abingdon, Virginia, while he was drilling for salt water. This county was then a part of Wayne County. Since then oil has been developed in McCreary County at various points. A group of small and rather unimportant pools, which have been on the pump for several years, are found on the South Fork. This is an extension of the Wayne County oil district. For farther details see Wayne County.

**McLEAN—No. 81.**

**LOCATION.**—Center of the western Kentucky coal fields.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—River plain low, undulating.

**DRAINAGE.**—Green River and its tributaries.

**STRUCTURAL LOCATION.**—McLean County is bisected by the Rough Creek fault and fold. Its central portion is an area of local uplift. Its northern and southern extremities dip from the central section.

**OIL AND GAS DEVELOPMENT.**—Some little prospecting has been carried forward in this county, but no wells of commercial importance have been developed. Structure exists in this county as well as a sequence of oil bearing sands and it is possible, with farther development, that oil may be found in commercially paying quantities.

**MEADE—No. 82.**

**LOCATION.**—Northwestern Kentucky. adjoining the Ohio River.

**SURFACE GEOLOGY.**—Mississippian limestones and shales.

**PHYSIOGRAPHY.**—Rolling and river plain.

**DRAINAGE.**—Unimportant tributaries of the Ohio River.

**STRUCTURAL LOCATION.**—Western flank of the Lexington dome of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—Meade County is the seat of the Rock Haven gas field which was developed a number of years ago. It is at present unimportant. Gas production was secured in a sand inclusion in the black shale. Very little prospecting is going forward in this county at the present time.

**MENIFEE—No. 83.**

**LOCATION.**—Northeastern Kentucky.

**SURFACE GEOLOGY.**—Pottsville conglomerate, St. Genevieve and St. Louis limestones.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—Tributaries of the Kentucky River.

**STRUCTURAL LOCATION.**—High up on the eastern flank of the Lexington dome of the Cincinnati arch, this county contains a number of minor folds. The Menifee gas field is located on an essentially monoclinal structure.

**OIL AND GAS DEVELOPMENT.**—Menifee County contains the Menifee gas field which lies in the western portion of the county and overlaps into Powell County in the southern section. This field was developed in 1901, the field gas coming from the porous strata in the Onondaga. This field has been extensively drilled and gas production at the present is decreasing in importance. It is used by the Central Kentucky Natural Gas Company as a reservoir supply field for the cities of Mt. Sterling, Winchester, Lexington, Versailles, Midway and Frankfort. Menifee County has been widely prospected and oil production of considerable importance has been secured. There are still possibilities of new pools in Menifee County. Drilling is to the depth of six and eight hundred feet.

**MERCER—No. 84.**

**LOCATION.**—This is a Blue Grass county, located high on the Lexington dome of the Cincinnati arch, and may be considered as unimportant from the standpoint of oil and gas prospecting. Ordovician limestones, proved unproductive in this part of the State, are the surface rocks.

**METCALFE—No. 85.**

**LOCATION.**—Southern-central Kentucky.

**SURFACE GEOLOGY.**—Mississippian limestones and shales.

**PHYSIOGRAPHY.**—Gently rolling, the southern section very rugged.

**DRAINAGE.**—Little Barren River. On the north are found the head waters of the Big Barren River, and in the southeastern section, Marrowbone Creek of the Cumberland River.

**STRUCTURAL LOCATION.**—Saddle of the Cincinnati arch, between the Lexington and the Nashville domes. Metcalfe County has several small structures. There is one with a doming center near Beaumont. Well defined dips are found to the south, east and west. The dip to the north is not so definite.

**OIL AND GAS DEVELOPMENT.**—One deep dry hole has been drilled in this county about two miles west of Beaumont. At Sulphur Wells, there are some small wells in which light amber oil has been found in the Waverly shale. Considerable development work is being carried on in this county. It is possible that commercial oil production will be found in this county if porous or sandy limestones can be located.

**MONROE—No. 86.**

**LOCATION.**—Southern Kentucky, adjoining the Tennessee line.

**SURFACE GEOLOGY.**—Principally, Mississippian limestones, with Devonian and Ordovician sediments in the Cumberland River in the southeastern portion of the county. No Silurian is found in Monroe County. It is also important to note that the Onondaga (Corniferous) limestone does not underlie the Devonian black shale in this county.

**PHYSIOGRAPHY.**—Rolling to rugged.

**DRAINAGE.**—Head water tributaries of the Big Barren River and small eastern tributaries of the Cumberland River.

**STRUCTURAL LOCATION.**—On the northern flank of the Nashville dome of the Cincinnati arch.

**OIL AND GAS DEVELOPMENT.**—Very little oil and gas prospecting has gone forward in this county, due principally to the fact that the Onondaga is absent under the greater portion of the county and that the section is somewhat isolated. In all probability the Silurian is also absent under the surface of the entire county with the exception of the western portion. The Ordovician limestones are present under Monroe County, and in all probability oil and gas will be secured in quantity at a later date in this county. A number of small structures are known to exist in this county. Recently two good oil wells were brought in west of Tompkinsville.

## MONTGOMERY—No. 87.

LOCATION.—Central-eastern Kentucky.

SURFACE GEOLOGY.—This county is practically in the Blue Grass section of the state. Its southeastern extremity overlaps into the Knobs region, where considerable prospecting is going forward and a few successful wells have been drilled. No wells of marked commercial importance, however, have been secured. The surficial rocks are Ordovician, Silurian, Devonian, Mississippian, and Pennsylvanian sediments.

## MORGAN—No. 88.

LOCATION.—Eastern Kentucky.

SURFACE GEOLOGY.—Coal measures.

PHYSIOGRAPHY.—Northwestward sloping plateau dissected in maturity.

DRAINAGE.—Licking River and its tributaries.

STRUCTURAL LOCATION.—Middle position on the eastern flank of the Lexington dome of the Cincinnati arch. This county is crossed in the southern extremity by the Irvine-Paint Creek fault and fold. There are, besides, a number of small structures in the north central portion of the county.

OIL AND GAS DEVELOPMENT.—Morgan County contains the one-time famous Cannel City oil pool, which was drilled in with gusher production from a few wells in 1912. Some of these wells showed flush production which reached seven hundred barrels. This field produced its maximum of twelve thousand barrels of crude oil per month in 1913. Production came from the Onondaga limestone, and was held in the porous strata on the anticline. Near West Liberty, the county seat of Morgan County, considerable gas has been found and much prospecting is going forward now within the boundaries of this county.

## MUHLENBERG—No. 89.

LOCATION.—This county is located in the southern-central section of western Kentucky coal field.

SURFACE GEOLOGY.—Coal measures except in southwest corner where the underlying Mississippian limestones are exposed.

PHYSIOGRAPHY.—Hilly in the north, rolling in the south.

DRAINAGE.—Green River and its tributaries.

STRUCTURAL LOCATION.—Muhlenberg County is bisected by the southwestern Kentucky geosyncline.

OIL AND GAS DEVELOPMENT.—Producing sands of the Pennsylvanian and Mississippian Systems are present here, but medium deep drilling will be required. There are no oil and gas pools of importance in this county.

## NELSON—No. 90.

LOCATION.—Nelson County is essentially a Blue Grass county. The southern portion, however, extends into the Knobs section. Ordovician, Silurian, Devonian, and Mississippian limestones and shales are found at the surface.

OIL AND GAS DEVELOPMENT.—It is doubtful if large amounts of oil and gas will ever be found in this county. The southern portion of the county exhibits a fair covering of Mississippian limestones and the black shale. Some little development has gone forward in this county. A number of test wells have been drilled in near New Hope without much success.

## NICHOLAS—No. 91.

LOCATION.—This is a Blue Grass county, located in the northeastern portion of the state, on the Licking River. It may be considered unimportant from an oil and gas standpoint. Ordovician limestones are at the surface.

## OHIO—No. 92.

LOCATION.—Eastern portion of the western coal field.

SURFACE GEOLOGY.—Coal Measures except in the central section where the Rough Creek fault brings up the Mississippian limestones.

PHYSIOGRAPHY.—Rolling and rugged.

DRAINAGE.—Green River and its tributaries.

STRUCTURAL GEOLOGY.—Ohio County is dissected by the Rough Creek fault and fold, the northern and southern extremities of the county dropping down to the northwest and to the southwest Kentucky geosynclines.

OIL AND GAS DEVELOPMENT.—An oil pool of considerable importance has been developed on the south flank of the Rough Creek anticline at a point between Sulphur Springs and Hartford. This is known as the Hartford oil pool. The producing sand is in the Waverly. With the Rough Creek anticline crossing this county and the producing sands of Kentucky present, Ohio County can be said to be a good prospecting county from an oil and gas standpoint.

## OLDHAM—No. 93.

LOCATION.—This is essentially a Blue Grass county, with a fringe of Devonian and Silurian outliers on its western boundaries.

OIL AND GAS DEVELOPMENT.—Although some gas was developed just southwest of LaGrange a number of years ago the prospects of securing either oil or gas in commercial quantity in this county are not considered good. Drilling should be discouraged.

## OWEN—No. 94.

LOCATION.—Owen County is located in the north-central part of the Blue Grass section of the state.

SURFACE GEOLOGY.—The surficial rocks of this county are Ordovician limestones which are faulted to a degree that alone precludes the accumulation of oil and gas.

**OIL AND GAS DEVELOPMENT.**—Little development work has been done in Owen County and no oil or gas has been secured. This county's possibilities of oil and gas are considered very poor.

**OWSLEY—No. 95.**

**LOCATION.**—Western part of the eastern coal field.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—South Fork of the Kentucky River.

**STRUCTURAL LOCATION.**—Low down on the eastern flank of the Cincinnati arch. This county contains a number of small structures, the most important being in the northwestern section of the county near Travelers Rest.

**OIL AND GAS DEVELOPMENT.**—Considerable oil and gas development has gone forward in this county. Gas in considerable quantity has been secured on a definite structure near Traveler's Rest. Only a small amount of oil has been recovered. It is possible before this season is over a few small oil wells will be reported.

**PENDLETON—No. 96.**

**LOCATION.**—Pendleton County is located in the northern part of Blue Grass section and is therefore unimportant from an oil and gas standpoint. Ordovician limestones are found at the surface.

**PERRY—No. 97.**

**LOCATION.**—Center of the eastern coal fields.

**SURFACE GEOLOGY.**—Coal Measures.

**PHYSIOGRAPHY.** — Dissected northwestward sloping plateau.

**DRAINAGE.**—North Fork of the Kentucky River.

**STRUCTURAL LOCATION.**—Perry County is located on the southeastern flank of eastern Kentucky's geosyncline which crosses the county in its northwestern extremity.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled in this county, but no oil or gas of commercial importance has been secured. The county has large productive possibilities and vast areas still untested.

### PIKE—No. 98.

**LOCATION.**—Easternmost county in Kentucky.

**SURFACE GEOLOGY.**—Principally, coal measures, with Devonian and Mississippian sediments outcropping along the Pine Mountain fault in the southwestern section of the county.



#### NORTHERN FLANK OF PINE MOUNTAIN ANTICLINE.

View from the crest of the Pine Mountain Anticline down the Russell Fork of the Levisa Fork (Pennsylvanian) of the Big Sandy River, from Virginia into Pike County, Kentucky. Shows northwest limb of the fold and 1,000 feet of the Lee formation. Photo by W. R. Jillson, April 5, 1919.

**PHYSIOGRAPHY.**—High northwestward sloping plateau dissected in maturity.

**DRAINAGE.**—Levisa, Tug, and Russell Forks of the Big Sandy River, and their tributaries.

**STRUCTURAL LOCATION.**—Pike County is on the southeastern flank of the eastern Kentucky geosyncline which crosses it in the northern extremity. A number of small structures exist in Pike County. Chief among them is the D'Invillier anticline, which rises between the head waters of the Shelby and Marrowbone Creeks and extends crescentrically to the northeast, then crosses the Russell and Levisa Forks of the Big Sandy River and progresses toward Williamson in Mingo County, West Virginia. The Williamson fold is probably a continuation of the D'Invillier structure. The Pine Mountain fault and fold crosses the southern edge of Pike County.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled in Pike County into the Pottsville. Some of these have shown gas in considerable quantity, but this gas is not now being commercialized. In the northern part of the county a number of wells have reached the Devonian but oil in paying quantities has not been found. The Pottsville is about one thousand feet thick below drainage and contains the Beaver, Horton and Pike sands, all of which may be looked upon as paying sands if accompanied by favorable structure. The sand inclusion in the Big Lime of the Mississippian System is a gas producer. Due to the extreme thickness of the upper Paleozoic sediments in this section, the Onondaga, the producing horizon of the Irvine field, would not be encountered here, except at a very deep depth. The Big Injun and Wier sands will probably develop gas and oil production respectively.

**POWELL—No. 99.**

**LOCATION.**—Western portion of the eastern coal field.

**SURFACE GEOLOGY.**—Limited outcrops of the Ordovician limestones in the extreme northwestern section of the county. To the southeast, the Silurian limestones, Devonian limestones and shales, Mississippian limestones, and the Pennsylvanian conglomerate appear.

## OHIO—No. 92.

LOCATION.—Eastern portion of the western coal field.

SURFACE GEOLOGY.—Coal Measures except in the central section where the Rough Creek fault brings up the Mississippian limestones.

PHYSIOGRAPHY.—Rolling and rugged.

DRAINAGE.—Green River and its tributaries.

STRUCTURAL GEOLOGY.—Ohio County is dissected by the Rough Creek fault and fold, the northern and southern extremities of the county dropping down to the northwest and to the southwest Kentucky geosynclines.

OIL AND GAS DEVELOPMENT.—An oil pool of considerable importance has been developed on the south flank of the Rough Creek anticline at a point between Sulphur Springs and Hartford. This is known as the Hartford oil pool. The producing sand is in the Waverly. With the Rough Creek anticline crossing this county and the producing sands of Kentucky present, Ohio County can be said to be a good prospecting county from an oil and gas standpoint.

## OLDHAM—No. 93.

LOCATION.—This is essentially a Blue Grass county, with a fringe of Devonian and Silurian outliers on its western boundaries.

OIL AND GAS DEVELOPMENT.—Although some gas was developed just southwest of LaGrange a number of years ago the prospects of securing either oil or gas in commercial quantity in this county are not considered good. Drilling should be discouraged.

## OWEN—No. 94.

LOCATION.—Owen County is located in the north-central part of the Blue Grass section of the state.

SURFACE GEOLOGY.—The surficial rocks of this county are Ordovician limestones which are faulted to a degree that alone precludes the accumulation of oil and gas.

**OIL AND GAS DEVELOPMENT.**—Little development work has been done in Owen County and no oil or gas has been secured. This county's possibilities of oil and gas are considered very poor.

**OWSLEY—No. 95.**

**LOCATION.**—Western part of the eastern coal field.

**SURFACE GEOLOGY.**—Coal measures.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—South Fork of the Kentucky River.

**STRUCTURAL LOCATION.**—Low down on the eastern flank of the Cincinnati arch. This county contains a number of small structures, the most important being in the northwestern section of the county near Travelers Rest.

**OIL AND GAS DEVELOPMENT.**—Considerable oil and gas development has gone forward in this county. Gas in considerable quantity has been secured on a definite structure near Traveler's Rest. Only a small amount of oil has been recovered. It is possible before this season is over a few small oil wells will be reported.

**PENDLETON—No. 96.**

**LOCATION.**—Pendleton County is located in the northern part of Blue Grass section and is therefore unimportant from an oil and gas standpoint. Ordovician limestones are found at the surface.

**PERRY—No. 97.**

**LOCATION.**—Center of the eastern coal fields.

**SURFACE GEOLOGY.**—Coal Measures.

**PHYSIOGRAPHY.** — Dissected northwestward sloping plateau.

**DRAINAGE.**—North Fork of the Kentucky River.

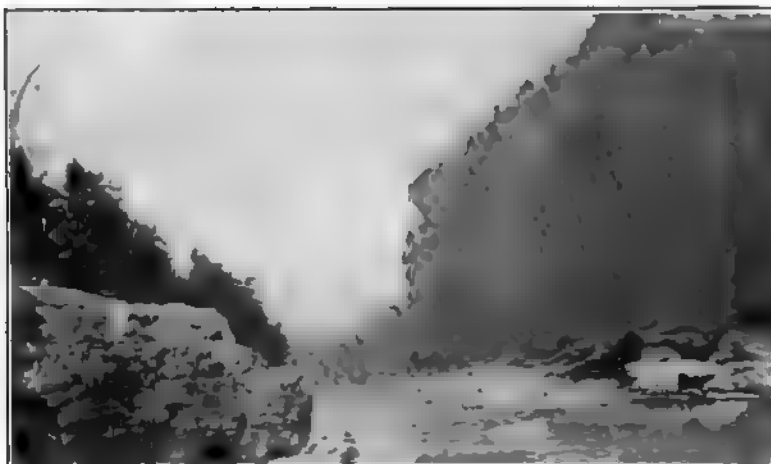
**STRUCTURAL LOCATION.**—Perry County is located on the southeastern flank of eastern Kentucky's geosyncline which crosses the county in its northwestern extremity.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled in this county, but no oil or gas of commercial importance has been secured. The county has large productive possibilities and vast areas still untested.

### PIKE—No. 98.

**LOCATION.**—Easternmost county in Kentucky.

**SURFACE GEOLOGY.**—Principally, coal measures, with Devonian and Mississippian sediments outcropping along the Pine Mountain fault in the southwestern section of the county.



#### NORTHERN FLANK OF PINE MOUNTAIN ANTICLINE.

View from the crest of the Pine Mountain Anticline down the Russell Fork of the Levisa Fork (Pennsylvanian) of the Big Sandy River, from Virginia into Pike County, Kentucky. Shows northwest limb of the fold and 1,000 feet of the Lee formation. Photo by W. R. Jillson, April 5, 1919.

**PHYSIOGRAPHY.**—High northwestward sloping plateau dissected in maturity.

**DRAINAGE.**—Levisa, Tug, and Russell Forks of the Big Sandy River, and their tributaries.

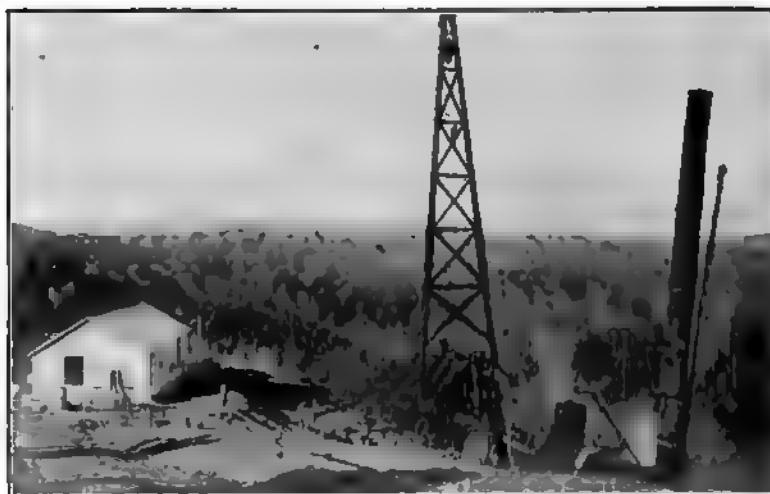
**STRUCTURAL LOCATION.**—Pike County is on the southeastern flank of the eastern Kentucky geosyncline which crosses it in the northern extremity. A number of small structures exist in Pike County. Chief among them is the D'Invillier anticline, which rises between the head waters of the Shelby and Marrowbone Creeks and extends crescentrically to the northeast, then crosses the Russell and Levisa Forks of the Big Sandy River and progresses toward Williamson in Mingo County, West Virginia. The Williamson fold is probably a continuation of the D'Invillier structure. The Pine Mountain fault and fold crosses the southern edge of Pike County.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled in Pike County into the Pottsville. Some of these have shown gas in considerable quantity, but this gas is not now being commercialized. In the northern part of the county a number of wells have reached the Devonian but oil in paying quantities has not been found. The Pottsville is about one thousand feet thick below drainage and contains the Beaver, Horton and Pike sands, all of which may be looked upon as paying sands if accompanied by favorable structure. The sand inclusion in the Big Lime of the Mississippian System is a gas producer. Due to the extreme thickness of the upper Paleozoic sediments in this section, the Onondaga, the producing horizon of the Irvine field, would not be encountered here, except at a very deep depth. The Big Injun and Wier sands will probably develop gas and oil production respectively.

**POWELL—No. 99.**

**LOCATION.**—Western portion of the eastern coal field.

**SURFACE GEOLOGY.**—Limited outcrops of the Ordovician limestones in the extreme northwestern section of the county. To the southeast, the Silurian limestones, Devonian limestones and shales, Mississippian limestones, and the Pennsylvanian conglomerate appear.



**AN EVEN SKY-LINE OF POTTSVILLE CONGLOMERATE.**

View on the Mary Adams farm in Powell County, adjoining the northern boundary of Lee County. The drilling is done under topographic difficulties. There are about thirty wells on the lease. Photo by W. R. Jilson, April, 1919.

**PHYSIOGRAPHY.**—Knob section, rough topography.

**DRAINAGE.**—Red River, a fork of the Kentucky River.

**STRUCTURAL LOCATION.**—Middle position on the eastern flank of the Lexington dome of the Cincinnati arch. The southern extremity of Powell County is crossed by the Irvine-Paint Creek fault and fold. There are also several small structures in this county.

**OIL AND GAS DEVELOPMENT.**—Powell County contains a number of oil pools. Among them are the Ashley pool, one of the most important in the Irvine section. Flush production was secured in a number of gusher wells from porous strata in the Onondaga limestone on a fold along the Irvine-Paint Creek fault. The northern portion of Powell County contains the southern extremity of Menifee gas field. A great deal of drilling has been done in this county.

**PULASKI—No. 100.**

**LOCATION**—South-central Kentucky.

**SURFACE GEOLOGY**.—Coal measures in the eastern, and Mississippian limestones in the central and western portions of the county. About five miles west of Somerset the sequence of Ordovician sediments is exposed in and near Fishing Creek.

**DRAINAGE**.—Cumberland River and its tributaries.

**STRUCTURAL LOCATION**.—East saddle position between the Lexington and Nashville domes on the Cincinnati arch.

**OIL AND GAS DEVELOPMENT**.—A number of wells have been drilled in this county, and oil and gas have been secured, but to date oil and gas in commercial quantity have not been secured. Somerset, the county seat, through which passes the Cumberland Pipe Line, gives its name to practically all of the eastern Kentucky oil which is designated as "Somerset Grade." The only eastern Kentucky production, excluded from the Somerset grade, is the low gravity crude of the Ragland pool of Bath, Rowan and Menifee Counties.

**ROBERTSON—No. 101.**

**LOCATION**.—Robertson County is located in the northeastern part of the state, in the Blue Grass area of the State. It is, therefore, unimportant from an oil and gas standpoint. Ordovician limestones are the surface rocks.

**ROCKCASTLE—No. 102.**

**LOCATION**.—Central Kentucky.

**SURFACE GEOLOGY**.—Principally, coal measures and Mississippian limestones with small inliers of the Devonian black shale.

**PHYSIOGRAPHY**.—Very rugged, due to widespread dissection of the erosion-resisting Pottsville conglomerate.

**DRAINAGE**.—Rockcastle River and its tributaries.

**STRUCTURAL LOCATION.**—Well up on the southeast flank of the Lexington dome of the Cincinnati anticline.

**OIL AND GAS DEVELOPMENT.**—Rockcastle County has had considerable oil and gas development but to date no oil or gas pool of commercial importance has been developed within its boundaries.

**ROWAN—No. 103.**

**LOCATION.**—Northeastern Kentucky.

**SURFACE GEOLOGY.**—Silurian, Devonian, Mississippian and Pennsylvanian limestones and shales. The Pottsville conglomerate overlaps into the southeastern section of this county.

**PHYSIOGRAPHY.**—Rolling to rough.

**DRAINAGE.**—North Fork of the Licking River and its tributaries.

**STRUCTURAL LOCATION.**—Middle high position on the Lexington dome of the Cincinnati anticline.

**OIL AND GAS DEVELOPMENT.**—A considerable number of wells have been drilled in Rowan County. The oil pool of outstanding importance within the county is the Ragland which crosses the Licking River in the southern part of the county.

**RUSSELL—No. 104.**

**LOCATION.**—Central-southern Kentucky.

**SURFACE GEOLOGY.**—This county is located in the saddle between the Lexington and the Nashville domes on the Cincinnati arch. It is doubtful if any Onondaga or Niagaran limestones underlie the surface of the county except in a very small portion.

**OIL AND GAS DEVELOPMENT.**—Only a little drilling has been done in this county; a few small structures are found, and the county's possibilities of oil and gas are undetermined for this reason. Pay sands might be secured in the Ordovician limestones beneath the black shale but the prospects are not very good.

## SCOTT—No. 105.

LOCATION.—This county is located in the heart of the Blue Grass section of Kentucky, and is considered undesirable for oil and gas testing. Ordovician limestones are the surficial rocks.

## SHELBY—No. 106.

LOCATION.—Shelby County is located in the western portion of the Blue Grass.

SURFACE GEOLOGY.—The surficial rocks are Ordovician limestones.

OIL AND GAS DEVELOPMENT.—The prospects for oil and gas in this county are considered of very doubtful importance.

## SIMPSON—No. 107.

LOCATION.—Southern Kentucky, adjoining the Tennessee line.

SURFACE GEOLOGY.—Mississippian limestones.

PHYSIOGRAPHY.—Rolling.

DRAINAGE.—Tributaries of Drake's Creek of Big Barren River.

STRUCTURAL LOCATION.—This county lies in a medial position on the north flank of the Nashville dome of the Cincinnati anticline. A number of small anticlines occur in this county.

OIL AND GAS DEVELOPMENT.—Within the last few years considerable prospecting has been done for both oil and gas in this county, and both have been secured though not in large quantity. Due to the rapid northwestern dip of the Onondaga and Silurian limestones Simpson County may be looked upon as an important prospecting county. Its structural location is equally as good as that of Barren and Warren Counties. To date, however, no considerable area of porous or sandy limestone has been located.

## SPENCER—No. 108.

LOCATION.—This is a Blue Grass county.

SURFACE GEOLOGY.—The surficial rocks are Ordovician limestones.

OIL AND GAS DEVELOPMENT.—Spencer County is considered of very little importance from an oil and gas standpoint.

## TAYLOR—No. 109.

LOCATION.—Central Kentucky.

SURFACE GEOLOGY.—Principally, Mississippian limestones with exception of a small area of Devonian shale in the creek bottoms, in the eastern section of the county.

PHYSIOGRAPHY.—Rolling.

DRAINAGE.—Tributaries of the Green River.

STRUCTURAL LOCATION.—Taylor County lies on the saddle between the Lexington and Nashville domes of the Cincinnati arch. A westward plunging anticline may be found just north of Saloma.

OIL AND GAS DEVELOPMENT.—A number of wells have been drilled in this county and some production secured, but to date no oil or gas pools of first rank have been proved in this county. Several dry holes have been drilled in Taylor but these may not be taken to condemn this area. Open, porous, or sandy limestones do not seem to be widely distributed in this county.

## TODD—No. 110.

LOCATION.—Southwestern Kentucky.

SURFACE GEOLOGY.—Mississippian limestones in the southwestern section of the county. Coal measures in the northern section.

PHYSIOGRAPHY.—Rolling in the south-central section and rugged in the north.

**DRAINAGE.**—North flank and tributaries of the Green River, and southern tributaries of the Cumberland River.

**STRUCTURAL LOCATION.**—Middle position on the north flank of the Nashville dome of the Cincinnati anticline.

**OIL AND GAS DEVELOPMENT.**—Very little oil and gas development has gone forward in this county, and its possibilities as an oil and gas producing county are very uncertain.

**TRIGG—No. 111.**

**LOCATION.**—This county is located in the Mississippian limestone section, in southwestern Kentucky, adjoining the Tennessee line.

**SURFACE GEOLOGY.**—Trigg County is partly within the greatly faulted section of western Kentucky and its potentialities of oil and gas are not considered very good.

**TRIMBLE—No. 112.**

**LOCATION.**—This is essentially a Blue Grass county. Located in the northwestern part of Kentucky adjoining the Ohio River.

**SURFACE GEOLOGY.**—The surficial rocks are Ordovician limestones with a few outliers of the Silurian. The possibilities of oil and gas are considered very poor.

**UNION—No. 113.**

**LOCATION.**—Western edge of the western coal fields of Kentucky.

**SURFACE GEOLOGY.**—Principally, coal measures with river deposits along the Ohio River.

**PHYSIOGRAPHY.**—Rolling to rough.

**DRAINAGE.**—Highland Creek and the tributaries of the Ohio River.

**STRUCTURAL LOCATION.**—Union county is bisected by the Rough Creek fault and fold.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled in this county, but oil or gas in important commercial quantities has not been secured. Several small oil wells of doubtful value are located in this county. A little prospecting is going forward.

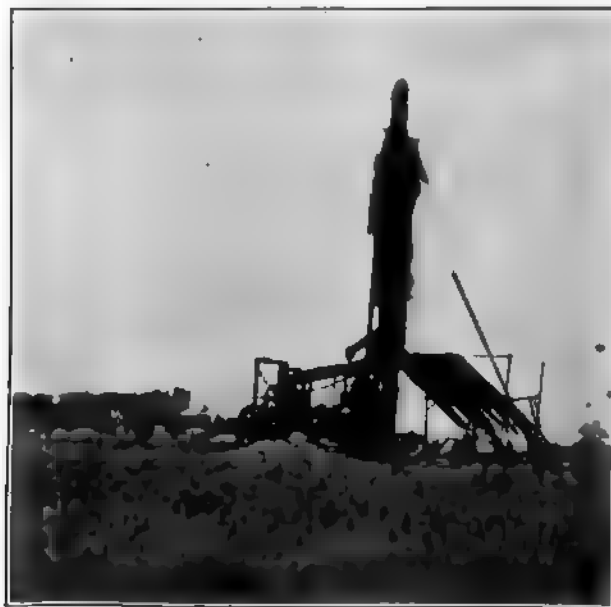
**WARREN—No. 114.**

**LOCATION.**—Southern Kentucky.

**SURFACE GEOLOGY.**—Principally, Mississippian limestones with a few outliers of the coal measures in the northwestern section of the county.

**PHYSIOGRAPHY.**—Rolling to rugged in the central and southwestern sections, and very hilly in the northwestern portion.

**DRAINAGE.**—Big Barren River and its tributaries including Drake's Creek.



**SHOOTING BOHON NO. 1, WARREN COUNTY, KY.**  
Photo by W. R. Jilison, 1919.

**STRUCTURAL LOCATION.**—Warren County lies on the northern flank of the Nashville dome of the Cincinnati anticline. There is a constant northwestward normal dip throughout this county. A number of small structures are to be seen throughout the county. One of the most pronounced of these is located just to the northwest of Bowling Green, Kentucky.

**OIL AND GAS DEVELOPMENT.**—A great many wells have been drilled in the southeastern portion of Warren County. The present tendency in this section of the State is from Barren and Allen Counties into Warren County. A great many wells are being drilled and the zenith of the field development of this county is still distant. Several pools of outstanding importance have been developed in the county. The chief among them is the Moulder pool in the eastern section of the county, adjoining Barren and Allen Counties on the Barren River. The Onondaga limestone, the producer of the Allen County field is known to be productive in this county. There are some indications that this horizon thickens towards the northwest. Within a short distance of Drake's postoffice, in the southeastern section of this county, oil has been found at a depth of one hundred and fifteen feet below the surface in a stray sand of the Mississippian, at Fort Payne. The oil is of a rather high gravity, and has a greenish-amber color. The striking of this small well establishes proved sands at shallow depth in the Mississippian, and gives added attraction to wild-cat drilling in the county. Considerable production has been developed near Green Hill in the southeastern section of the county.

**WASHINGTON—No. 115.**

**LOCATION.**—Washington County is located in the Blue Grass section of Kentucky. It is considered unimportant for oil and gas prospecting. The surficial rocks are Ordovician limestones with a few outliers of the Silurian limestones.

**WAYNE—No. 116.**

**LOCATION.**—Central-southern Kentucky, adjoining the Tennessee line.

**STRUCTURAL LOCATION.**—Whitley County is bisected by the eastern Kentucky geosyncline.

**OIL AND GAS DEVELOPMENT.**—A number of wells have been drilled in Whitley County but to date no production of commercial importance has been secured.

**WOLFE—No. 119.**

**LOCATION.**—Eastern Kentucky.

**SURFACE GEOLOGY.**—Principally, coal measures with Mississippian limestones in the creek bottoms in the extreme northwestern portion of the county.

**PHYSIOGRAPHY.**—Plateau dissected in maturity.

**DRAINAGE.**—North Fork and other tributaries of the Kentucky River.



**VIEW AT TORRENT, WOLFE COUNTY, KY.**  
Photo by O. Wolf, 1918.

**STRUCTURAL LOCATION.**—Wolfe County is bisected by the Irvine-Paint Creek fault and fold. The county has a position well down on the eastern flank of the Lexington dome of the Cincinnati anticline. A number of small structures radiate from and parallel the Irvine-Paint Creek fault and fold.

**OIL AND GAS DEVELOPMENT.**—Wolfe County is one of the established oil and gas producing counties of the state of Kentucky. It has within its boundaries a number of very important wells. These are found in an extension of the Irvine pool just west of Torrent, the old Campton pool, and the Hazel Green pool. A large percentage of the drilling in this county has been successful, but all of the oil and gas producing areas are not yet thoroughly known. Some areas on structure, however, have proved barren. There are indications that new pools of commercial importance will still be discovered within the boundaries of this county. The Onondaga limestone, which contains oil in commercial quantities, is the producing “sand” in this county.

**WOODFORD—No. 120.**

**LOCATION.**—Woodford is the Central Blue Grass county of the State of Kentucky, and is considered unimportant for oil and gas testing. Unproductive upper and lower Ordovician limestones form the surface strata. Prospecting for oil and gas in this county is discouraged.

## CHAPTER VIII.

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### RECORDS OF DRILLED WELLS.

Herewith are presented the records of 752 wells drilled in Kentucky. This number represents only a small portion of the total number of oil and gas wells actually drilled. A very great many wells have been drilled on which no complete records were kept. This is especially true in the larger fields such as the Estill, Lee, Allen and Wayne County pools, where the drillers and operators were only interested in the actual depth of the producing sand below the surface. In other cases, where records were kept, the owners exhibiting selfish motives have objected to publication. Enough records are given, however, to faithfully represent nearly all parts of the State in which drilling has been done and to show the character of the material drilled through, and the relative positions of the oil and gas sands.

In these records the position of the black shale (designated Devonian) is given wherever possible. This is simply intended as a guide to the driller. It is not always the case that only that which is so marked represents and delimits the Devonian in that particular section. In some of the records a portion of what is called "Black Shale" by the driller really belongs in the Mississippian System while in a great many of them, some of the formations below the black shale are also Devonian.

The thickness of coal seams given in these records cannot be considered as reliable for mining index purposes. In some cases the thickness is obviously too great and in others what is called coal may only be black shale. A few interesting records of wells drilled just outside the State lines have been added. Practically all of the records here given have been edited by the author and divisions made according to the various geologic systems, e. g., Pennsylvanian, Mississippian, Devonian, Silurian, Ordovician, etc. This has been done to help in an understanding of the subsurface stratigraphy of each county.

ALLEN COUNTY.

LOG No. 1.

J. H. CARTER FARM

Northeast of Adolphus.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Unrecorded, 152.		
DEVONIAN SYSTEM.		
Top of Black Shale .... } (Devonian) .....	0	152
Base of Black Shale .. }	43	195
Sulphur water .....	1	196
Oil sand (lime?).....	4	200
Lime .....	21	221
Sand (lime?) .....	4	225
Blue clay .....	28	253
Sand (lime?) .....	4	257
Slate .....	14	271
Lime .....	552	823
Sand (?) .....	76	899

LOG No. 2.

WIDOW LANE FARM

Near Tennessee Line.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Lime .....	65	70
Sand .....	20	90
Blue lime .....	40	130
Slate .....	5	135
Sand .....	10	145
Slate .....	5	150
DEVONIAN SYSTEM.		
Black Shale .....	55	205
Gray lime .....	30	235
Oil-sand (lime?) .....	10	245
Blue lime .....	20	265
White lime .....	3	268
Well was dry.		

## LOG No. 3.

## KEEN WELL NO. 7—RODEMER POOL.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime and Shale .....	120	120
<b>DEVONIAN SYSTEM.</b>		
Black Shale .....	43	163
Blue lime .....	11	174
Brown sand (lime?) .....	3	177
Light lime .....	6	183
Brown sand (lime?) Pay sand.....	9	192
Hard lime .....	2	194
Light blue lime .....	9	203
Dark lime .....	2	205
Gray lime .....	1	206
Dark lime .....	6	212
Blue lime .....	10	222
Light blue lime.....	3	225

## LOG No. 4.

## ROSA HOLDER FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	28	28
White lime .....	158	186
<b>DEVONIAN SYSTEM.</b>		
Black Shale (Devonian) .....	41	227
Lime—Gas show at 245—Water at 320.....	98	325

## LOG No. 5.

## SETTLES WELL—No. 3.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Casing .....	81	81
Limestone .....	119	200
Green shale .....	3	203
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	45	248
Dark lime (oil smell) .....	5	253
Hard lime .....	10	263
Brown oil-sand (lime?) Gas.....	13	276
Oil show at .....		276
Shaly lime .....	14	290
Dark brown sand (lime?) Oil show .....	5	295
Hard blue lime .....	6	301
Sandy lime—Oil show .....	2	308
Hard blue and shaly lime .....	20	328
Hard sand (?) .....	1	329
Salt water .....	5	334

LOG No. 6.

OCALA OIL CO.—No. 4.

Frost Farm, 3 miles South of Scottsville.

Strata	Depth
MISSISSIPPIAN SYSTEM.	
Unrecorded, 210.	
DEVONIAN SYSTEM.	
Top of black shale at.... } (Devonian)	210
Base of black shale at..... }	257
First oil show at.....	271
Oil at .....	282
Bottom of well at .....	287

LOG No. 7.

OCALA OIL CO.—No. 5.

Strata	Depth
MISSISSIPPIAN SYSTEM.	
Unrecorded, 223.	
DEVONIAN SYSTEM.	
Top of black shale at..... } (Devonian)	223
Base of black shale at ..... }	269
First pay at .....	294
Salt water at .....	308

LOG No. 8

OCALA OIL CO.—No. 6.

Strata	Depth
MISSISSIPPIAN SYSTEM.	
Unrecorded, 209.	
DEVONIAN SYSTEM.	
Top of black shale at..... } (Devonian)	209
Base of black shale at.... }	256
Oil and water at.....	283
Oil at .....	298

LOG No. 9:

ROY GILLIAM FARM—GAS CREEK,  
East of Adolphus.

Strata	Depth
MISSISSIPPIAN SYSTEM.	
Unrecorded, 69.	
DEVONIAN SYSTEM.	
Top of black shale at .. } (Devonian)	69
Base of black shale at .. }	102
Oil and water at.....	103
Water to .....	159

## LOG No. 10.

## WALKER WELL.—No. 1.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	127	127
<b>DEVONIAN SYSTEM.</b>		
Black Shale .....	50	177
Cap rock .....	4	181
Dark gray, sandy lime .....	20	201
Brown lime—Oil show.....	12	213
Sandy shale .....	12	225
Lime and brown sand—Oil smell .....	8	233
Dark muddy shale .....	12	245
Dark sandy shale .....	8	253
Dark muddy shale .....	17	270
White water sand (lime?) fresh water.....	2	272

## LOG No. 11.

**RUSH WELL.—No. 1.**  
 Western edge of Allen County.  
 (Partial record).

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Shale .....	45	45
Hard lime .....	40	85
Sand—Oil show .....	59	144
<b>DEVONIAN SYSTEM.</b>		
Black Shale .....	116	200
Cap rock .....	8	268
Dry sand (lime?) .....		
Lime .....		
Dry sand (lime?) .....		
Bluish-green shale .....		to 405

## LOG No. 12.

**WELL ON BIG TRAMMEL CREEK,**  
 Five miles southwest of Scottsville.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	12	12
Blue limestone .....	90	102

DEVONIAN SYSTEM.

Black Shale .....	13	115
Black rock—Oil at 127.....	12	127
Blue limestone .....	40	167
White sand (lime?) .....	20	187
Black rock—Gas at 193.....	6	193
Soft sand rock (lime?) .....	10	203
Yellow flinty sand (lime?) salt water.....	2	205
"Trenton" rock* .....	600	805
Blue limestone .....	200	1005
"Trenton" (light) .....	85	1090

\*"Trenton" is driller's distinction.

LOG No. 13.

WELL AT PETROLEUM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	10	10
Blue limestone .....	30	40
DEVONIAN SYSTEM.		
Black Shale .....	9	49
Light gray sandstone (lime?) .....		
Oil at 132 .....	83	132

LOG No. 14.

GAINESVILLE OOL.

J. R. JOHNSON No. 1.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	7	7
Limestone .....	184	191
DEVONIAN SYSTEM.		
Black shale .....	47	238
Blue limestone .....	6	244
Lime sand .....	36	280

LOG No. 15.

J. R. JOHNSON No. 2.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Limestone .....	177	182
DEVONIAN SYSTEM.		
Black shale .....	45	227
Blue limestone .....	7	234
Lime sand .....	1	235

## LOG No. 16.

## J. R. JOHNSON No. 3.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	6	6
Limestone .....	166	172
<b>DEVONIAN SYSTEM.</b>		
Black shale—Devonian .....	49	221
Blue limestone .....	71	292
Lime sand .....	4	296
Limestone .....	14	310

## LOG No. 17.

## J. R. JOHNSON No. 4.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	6	6
Limestone .....	166	172
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	42	214
Blue limestone .....	5	219
Lime sand .....	28	247
Limestone .....	7	254

## LOG No. 18.

## J. R. JOHNSON No. 5.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	4	4
Limestone .....	234	243
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	44	287
Blue limestone .....	5	292
Lime sand .....	60	352
Black limestone .....	94	446

## LOG No. 19.

## J. R. JOHNSON No. 7.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	8	8
Limestone .....	234	242
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	46	288
Blue limestone .....	5	293
Lime sand .....	83	376

LOG No. 20.

J. R. JOHNSON No. 8.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	18	18
Limestone .....	254	272
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	46	318
Blue limestone .....	6	324
Lime sand .....	57	381
Black limestone .....	70	451

LOG No. 21.

J. R. JOHNSON No. 9.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	6	6
Limestone .....	265	271
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	46	317
Blue limestone .....	5	322
Lime sand .....	13	335
Black limestone .....	75	410

LOG No. 22.

J. R. JOHNSON No. 10.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	18	18
Limestone .....	268	286
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	44	330
Blue limestone .....	5	335
Lime sand .....	15	350
Black limestone .....	50	400

LOG No. 23.

ANDY SMITH No. 2.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Limestone .....	274	274
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	46	320
Blue limestone .....	19	339
Lime sand .....	30	369
Limestone .....	6	375

LOG No. 24.

ANDY SMITH No. 3.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	276	276
DEVONIAN SYSTEM.		
Black shale .....	50	326
Blue limestone .....	23	349
Blue limestone .....	12	361
Lime sand .....	31	392
Limestone .....	4	396

LOG No. 25.

SCOTTSVILLE OIL POOL,

OCALA OIL CO. No. 4.

Frost Farm, 3 Miles S. of Scottsville.

Strata		Depth
MISSISSIPPIAN SYSTEM.		
Unrecorded, 210.		
DEVONIAN SYSTEM.		
Top of black shale at	} (Devonian)	210
Base of black shale at		257
First oil show at.....		271
Oil .....		282
Bottom of well at.....		278

LOG No. 26.

OCALA OIL CO. No. 5.

Strata		Depth
MISSISSIPPIAN SYSTEM.		
Unrecorded, 223.		
DEVONIAN SYSTEM.		
Top of black shale at	} (Devonian)	223
Base of black shale at		269
First pay at.....		294
Salt water at.....		308

LOG No. 27.

OCALA OIL CO. No. 6.

Strata		Depth
MISSISSIPPIAN SYSTEM.		
Unrecorded, 209.		
DEVONIAN SYSTEM.		
Top of black shale at	} (Devonian)	209
Base of black shale at		256
Oil and water at.....		283
Oil at .....		298

LOG No. 28.

RODEMER POOL,  
KEEN WELL No. 7.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime and shale.....	120	120
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	43	163
Blue lime .....	11	174
Brown sand (lime?) .....	3	177
Light lime .....	6	183
Brown sand (lime?) Pay sand.....	9	192
Hard lime .....	2	194
Light blue lime .....	9	203
Dark lime .....	2	205
Gray lime .....	1	206
Dark lime .....	6	212
Blue lime .....	10	222
Light-blue lime .....	3	225

LOG No. 29.

ROSA HOLDER FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	28	28
White lime .....	158	186
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	41	227
Lime-Gas show at 245. Water at 320.....	98	325

LOG No. 30.

SETTLES WELL No. 3.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Casing .....	81	81
Limestone .....	119	200
Green shale .....	3	203
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	45	248
Dark lime (Oil smell).....	5	253
Hard lime .....	10	263
Brown oil-sand (lime?) Gas .....	13	276
Oil show at.....		276
Shaly lime .....	14	290
Dark brown sand (lime?) Oil show .....	5	295
Hard blue lime.....	6	301
Sand lime—Oil show.....	7	308
Hard blue and shaly lime .....	20	328
Hard sand (?).....	1	329
Salt water .....	5	334

LOG No. 31.

TRAMMEL CREEK POOL,  
WELL ON BIG TRAMMEL CREEK.  
Five Miles Southwest of Scottsville.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	12	12
Blue limestone .....	90	102
DEVONIAN SYSTEM.		
Black shale .....	13	115
Black rock—Oil at 127.....	12	127
Blue limestone .....	40	167
White sand (lime?) .....	20	187
Black rock—Gas at 193.....	6	193
Soft sand rock (lime?).....	10	203
Yellow flinty sand (lime?) Salt water.....	2	205
“Trenton” rock* .....	600	805
Blue limestone .....	200	1,005
“Trenton” (light) .....	85	1,090

\*“Trenton” is driller’s distinction.

LOG No. 32.

PETROLEUM POOL,  
WELL AT PETROLEUM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	10	10
Blue limestone .....	30	40
DEVONIAN SYSTEM.		
Black shale .....	9	49
Light gray sandstone (lime?) Oil at 132....	83	132

LOG No. 33.

ADOLPHUS POOL,  
J. H. CARTER FARM, NORTHEAST OF ADOLPHUS.

Strata		Depth
DEVONIAN SYSTEM.		
Top of black shale	} (Devonian)	152
Base of black shale		195
Sulphur water .....		196
Oil sand (lime?) .....		200
Lime .....		221
Sand (lime?) .....		225
Blue clay .....		253
Sand (lime?) .....		257
Slate .....		271
Lime .....	281 to	823
Sand (?) .....	823 to	899

LOG No. 34.

WIDOW LANE FARM, NEAR TENNESSEE LINE.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	5	5
Lime .....	65	70
Sand .....	20	90
Blue lime .....	40	130
Slate .....	5	135
Sand .....	10	145
Slate .....	5	150
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	55	205
Gray lime .....	30	235
Oil-sand (lime?) .....	10	245
Blue lime .....	20	265
White lime .....	3	268
Well was dry.		

LOG No. 35.

VARIOUS LOCATIONS.  
GEORGE JEWELL WELL.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil and limestone .....	193	193
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	50	243
Blue limestone .....	7	250
Lime sand .....	28	278
Broken limestone .....	14	292
Lime sand .....	4	296

LOG No. 36.

WOOD JEWELL WELL.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil and limestone .....	188	188
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	50	238
Blue limestone .....	2	240
Lime sand .....	10	250

LOG No. 37.

T. Y. OLIVER WELL No. 1.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	37	37
Limestone .....	274	311
DEVONIAN SYSTEM.		
Black shale .....	43	354
Lime sand .....	65	419
1st sand 5ft.		
2nd sand 10 ft.		
3rd sand 14 ft.		

LOG No. 38.

B. T. WILLIAMS WELL.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	30	30
Limestone .....	272	302
DEVONIAN SYSTEM.		
Black shale .....	48	350
Lime sand .....	98	448
Slate .....	54	502

LOG No. 39.

L. W. NICHOLS WELL No. 1.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	13	13
Limestone .....	250	263
DEVONIAN SYSTEM.		
Black shale .....	57	320
Blue limestone .....	5	325
First sand .....	5	330
Blue limestone .....	12	342
Second sand .....	20	362
Limestone .....	20	382

LOG No. 40.

JOHNSON FARM No. 1.  
Near Clifton School.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	7	7
Gray lime .....	68	75
"Gas sand" .....	5	80
Lime .....	111	191

DEVONIAN SYSTEM.

Shale .....	47	238
Cap rock .....	8	246
"Oil sand" .....	2	248

LOG No. 41.

SAM WHEAT FARM,  
West of Trammel Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	8	8
White lime .....	40	48
Blue lime .....	2	50
DEVONIAN SYSTEM.		
Black shale .....	45	95
Cap rock .....	5	100
"Oil sand" .....	12	112
Blue lime .....	48	160
Broken sand (?) .....	15	175
Blue shale .....	25	200

In Allen county the majority of the wells get production in the Onondaga or Niagara limestone a few feet below the Black Shale of the Devonian System.

There are, however, two deeper "pays" and chances for oil are not exhausted unless drilling is carried to a depth of from 125 to 150 feet below the shale. Deeper drilling than this should be discouraged.

BARREN COUNTY.

LOG No. 42.

MARTHA DOUGHERTY FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	9	9
Lime shells .....	10	19
Sand .....	6	25
Sandy lime—Oil show at 45.....	20	45
Lime .....	18	63
White lime .....	31	94
Sandy lime—Oil show at 106.....	12	106
White lime—Oil show at 112.....	6	112
DEVONIAN SYSTEM.		
Black shale .....	34	146
Sandy lime .....	20	166

## SILURIAN SYSTEM.

Lime shells	30	196
Lime	10	206
Sandy lime	10	216
White lime	12	228
Dark lime	22	250
Blue shale	3	253
Sandy lime	12	265
Lime shells	20	285
Dark sandy shale—Heavy gas at 288.....	6	291
White sandy shale	2	293
Lime and shells	55	348
Sandy lime	12	360
Lime	24	384
Lime shells	60	444
Light slate	20	464
Lime shells	40	504
"Flint" and lime shells	25	529
Lime	35	564
Sandy lime	40	604
"Flint" shells	20	624
Lime	30	654
Blue lime	60	714
Slate and lime shells	45	759
Lime and "flint" shells	60	819
Lime shells	50	869
Light brown lime	96	965
White "flint" shells	55	1,020
"Flint" and lime shells	45	1,065
Brown "flint" shells	20	1,085
Lime shells	40	1,125
White lime	60	1,185
Dark sandy lime—Gas pocket at 1,190.....	12	1,197
Lime .....	14	1,211

## LOG No. 43.

## GEO. E. BOLES FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil	8	8
Lime	12	20
Sand	15	35
Sandy lime	20	55
White lime	18	73
Light lime	23	96
Sandy lime	6	102
DEVONIAN SYSTEM.		
Black shale	32	134
Sandy lime	10	144

SILURIAN SYSTEM.

Shelly lime .....	35	171
Lime .....	12	191
Sandy lime—Gas to 263 .....	92	283
Shelly lime .....	40	323
Blue shale .....	92	415
Lime shells .....	75	490
Sandy lime .....	128	618
"Flint" and sandy lime .....	30	648
Black lime .....	53	701
Lime shells and slate .....	50	751
Lime and flint shells .....	60	811
White lime .....	20	831
Green lime .....	12	843
Brown "flint" .....	90	933
White shelly "flint" .....	52	985
Brown "flint" .....	20	1,005
Lime shells .....	40	1,045
White lime .....	35	1,080
Dark lime .....	16	1,096

LOG No. 44.

J. E. BUSH FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	10	10
Dark lime .....	45	55
DEVONIAN SYSTEM.		
Black shale .....	30	85
Dark sand .....	10	95
SILURIAN SYSTEM.		
Dark lime .....	60	155
Light lime .....	56	211
Dark lime .....	154	365
Lime and sandy shells .....	43	408
Blue shale .....	104	512
Dark lime .....	12	524
Shelly lime .....	46	570
Sandy lime .....	7	577
Shelly lime—Gas at 578.....	83	660
Sandy lime .....	15	675
Brown "flint" .....	45	720
Light lime and shells .....	55	775
Dark lime .....	41	816
Lime shells .....	10	826
Black slate .....	30	856
Sandy lime .....	40	896
White lime .....	179	1,075

## LOG No. 45.

## C. C. McGUIRE FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	21	21
Hard lime .....	12	33
White sand .....	25	58
White sandy lime .....	24	82
White lime .....	15	97
Dark sandy lime .....	4	101
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	34	135
Dark sandy lime .....	35	170
<b>SILURIAN SYSTEM.</b>		
Dark slate .....	20	190
Light lime .....	40	230
Dark lime .....	60	290
Light sandy lime .....	15	305
Dark lime .....	50	355
Blue shale .....	85	440
Light lime .....	18	458
Dark shelly lime .....	130	588
Dark sandy shale .....	140	728
Light lime .....	12	740
Dark lime .....	25	765
Brown lime .....	23	788
Light lime .....	10	798
Brown lime and "flint" .....	60	858

## LOG No. 46.

## B. AND K. NUCKOLS FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	3	3
Dark lime .....	18	21
Slate .....	8	29
White lime—gas at 105.....	141	170
Blue slate—Oil show at 180.....	10	180
Lime shells .....	2	182
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	20	202
Blue lime .....	9	211
Gray lime—Oil show at 238.....	29	240

SILURIAN SYSTEM.

Blue lime .....	10	250
Blue shale .....	25	275
Blue lime—Oil show .....	9	284
Light lime .....	8	292
Dark lime .....	200	492
Lime and shale .....	248	740
Dark lime .....	40	780
Light lime .....	75	855
Blue lime—Oil show.....	80	935
Sandy lime .....	12	947
Shells and slate .....	20	967
White lime—Gas at 1,025.....	150	1,117
Dark lime .....	119	1,236
Pink lime .....	60	1,296

LOG No. 47.

J. M. HAMMER FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	5	5
Gray lime .....	12	17
Dark shale and shells .....	3	20
Dark lime .....	10	30
Dark lime and shale .....	20	50
Gray lime—gas at 80 .....	30	80
Light lime—gas at 90, 130 and 170.....	100	180
Slate and shells .....	25	205
DEVONIAN SYSTEM.		
Black shale .....	30	235
Dark lime—Oil and salt water at 240.....	50	285
Light slate .....	30	315
Light lime .....	200	515
Shells and shale .....	150	665
Dark lime .....	165	830

LOG No. 48.

W. E. PEDEN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	13	13
Gray lime .....	50	63
Blue shale .....	10	73
Lime shell .....	2	75
DEVONIAN SYSTEM.		
Black shale .....	25	100
Dark lime—Oil show at 125.....	35	135

**SILURIAN SYSTEM.**

Blue slate .....	25	160
Blue lime—Oil show at 178.....	165	325
Gray lime .....	80	405
Lime and slate—Gas at 530 and 555.....	180	585
Dark lime—Gas at 585 and 685.....	100	685
Blue lime .....	150	835
White lime .....	100	935
White slate .....	6	941
Gray lime .....	125	1,066
Dark lime .....	18	1,084
Light lime .....	100	1,184
Dark lime .....	466	1,650

**LOG No. 49.****BEALS FARM.—No. 1.**

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	6	6
Lime .....	159	165
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	24	189
Lime .....	9	198
"Oil sand" .....	4	202

**LOG No. 50.****BEALS FARM.—No. 2.**

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	6	6
Lime .....	149	155
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	40	195
Lime .....	6	201
"Oil sand" .....	5	206

In the following groups of old shallow well records in Barren county the divisions marked "Waverly," "Clinton," "Niagara" and "Trenton" are distinctions made by the driller and are obviously incorrect.

**LOG No. 51.****BOYD'S CREEK WELLS.**

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	58	58
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	18	76
Top of 1st sand at.....		80
Gas and salt water at.....		87
Top of 2nd sand at.....		175
Bottom of well at.....		209

LOG No. 52.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	55	55
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	35	90
Gas at .....		135
Bottom of well at .....		180

LOG No. 53.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	53	53
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	27	85
Oil and gas at .....		87

LOG No. 54.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	70	70
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	25	95
Oil and gas at .....		90
Oil and gas at .....		135
Bottom of well at .....		265

LOG No. 55.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	55	55
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	15	70
Oil and gas at 70, 165 and 230 .....		
Bottom of well at .....		241

LOG No. 56.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	73	73
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	41	114
Oil at .....		116
Bottom of well at .....		205

## LOG No. 57.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	58	58
DEVONIAN SYSTEM.		
Black shale .....	32	90
Oil at .....		37
Gas and oil at .....		145
Salt water at .....		156
Bottom of well at.....		201

## LOG No. 58.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	112	112
DEVONIAN SYSTEM.		
Black shale .....	38	150
Amber oil at .....		84
Bottom of well at .....		168

## LOG No. 59.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	68	68
DEVONIAN SYSTEM.		
Black shale .....	33	101
Oil at .....		225
Bottom of well at .....		272

## LOG No. 60.

JACK KINSLOW FARM.  
WELL No. 1.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	8	8
Waverly .....	49	57
DEVONIAN SYSTEM.		
Black shale .....	44	101
"Niagara" .....	24	125
"Clinton" .....	20	145

LOG No. 61.

WELL No. 2.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	12	12
St. Louis and Waverly.....	103	115
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	42	157
"Niagara" .....	23	180
"Clinton" oil and gas at 183 .....	20	200

LOG No. 62.

WELL No. 3.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	8	8
St. Louis .....	87	95
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	46	141
"Niagara" .....	19	160
"Clinton" oil and gas at 165 .....	20	180
Bottom of well at.....		195

LOG No. 63.

WELL No. 4.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	28	28
St. Louis .....	106	134
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	45	179
"Niagara" .....	23	203
"Clinton" oil and gas at 205.....	20	223
Bottom of well at .....		223

LOG No. 64.

WELL No. 5.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	58	58
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	30	88
"Niagara" .....	35	123
"Clinton" gas and oil at 123.....	25	148

200 OIL AND GAS RESOURCES OF KENTUCKY

LOG No. 65.

WELL No. 6.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	140	140
DEVONIAN SYSTEM.		
Black shale .....	53	193
"Niagara" .....	20	213
"Clinton" oil and gas at 213 .....	23	236
Salt water at.....		260
Bottom of well at .....		341

LOG No. 66.

MILLS FARM.

WELL No. 1.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	74	74
DEVONIAN SYSTEM.		
Black shale .....	31	105
"Trenton" oil, gas and water .....	15	120

LOG No 67.

WELL No. 2.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	74	74
DEVONIAN SYSTEM.		
Black shale .....	35	109
"Trenton" oil, gas and water.....	18	127

LOG No. 68.

ELLIS FARM.

WELL No. 1.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	46	46
DEVONIAN SYSTEM.		
Black shale .....	29	75
Oil at .....		127

LOG No. 69.

WELL No. 2.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	42	42
DEVONIAN SYSTEM.		
Black shale .....	50	92
Oil and gas at.....		160

LOG No. 70.

SOUTHERN KENTUCKY OIL CO. WELLS.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	8	8
Waverly .....	67	75
DEVONIAN SYSTEM.		
Black shale .....	30	105
"Niagara" oil .....	36	141
"Clinton" gas at 150 .....	20	161

LOG No. 71.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	187	187
DEVONIAN SYSTEM.		
Black shale .....	33	220
"Niagara" .....	20	240
"Clinton" .....	20	260
Oil and gas at .....		240
Salt water at .....		254

LOG No. 72.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	148	148
DEVONIAN SYSTEM.		
Black shale .....	32	180
"Niagara" .....	46	226
"Clinton" .....	20	246
Oil and gas at .....		226
Salt water at .....		230

LOG No. 73.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	130	130
DEVONIAN SYSTEM.		
Black shale .....	36	166
"Niagara" .....	36	202
"Clinton" .....	29	231
Oil at .....		202
Water at .....		205
Oil and water at .....		212

## LOG No. 74.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	198	198
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	32	230
"Niagara" .....	19	249
"Clinton" .....	29	278
Oil and gas at .....		249

## LOG No. 75.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly .....	150	150
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	30	180
"Niagara" .....	37	217
"Clinton" .....	20	237
Gas at .....		180
Oil at .....		217

## LOG No 76. OLD CARROLL WELLS.

Well No. 1—Gas at 819. Bottom at 875.

## LOG No. 77.

Well No. 2—Oil at 355. Bottom at 355.

## LOG No. 78.

Well No. 3—Oil at 100, gas at 715 and 1135. Bottom at 1135.

## LOG No. 79.

Well No. 4—Gas at 750. Bottom at 750.

## LOG No. 80.

Well No. 5—Oil at 110, gas at 1166. Bottom at 1166.

## LOG No. 81. OLD HAVEN—CHASE WELLS.

North well .....Top of black shale at 230. Oil at 307

## LOG No. 82.

West well .....Top of black shale at 225. Oil at 120

## LOG No. 83.

South well .....Top of black shale at 228. Oil at 120

## LOG No. 84.

East well .....Top of black shale at 225. Oil at 310

## LOG No. 85.

Southeast well .....Top of black shale at 185. Oil at 310

## LOG No. 86.

Southwest well .....Top of black shale at 225. Gas at 130

In Barren county the principal producing "sand" is either the Onondaga or Niagara limestone found below the Devonian Black Shale. There are, however, in some parts of the county "stray" sands in the Waverly limestone above the black shale which produce a very light, high gravity, amber crude. In the above Barren county wells the designations of "Waverly," "Niagaran," "Clinton," etc., are driller's terms and may or may not be correct.

## BATH COUNTY.

LOG No. 87.

EWING HEIRS No. 23.

1 mile below head of Clear Creek.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Waverly shales and sandstones.....	430	430
<b>DEVONIAN SYSTEM.</b>		
Black and blue shale .....	202	632
"Ragland" sand .....	48	680
<b>SILURIAN SYSTEM.</b>		
Soft blue shale .....	22	702
Blue and red shales .....	151	853
Limestone .....	14	867
Light blue shale .....	13	880
Light blue and pink shales.....	6	886
<b>ORDOVICIAN SYSTEM.</b>		
Limestone .....	27	913
Blue shale .....	37	950
Limestone .....	735	1685
Gray, crystalline limestone .....	215	1900
Green shale at 1900 (Top of Tyrone Ls.)		
Light dove-colored limestone .....	110	2010
White magnesian limestone .....	20	2030
Dark dove-colored limestone .....	470	2500
Dark and light gray limestones.....	8	2508
Dark gray limestone and shale .....	8	2516
Calcareous shale and sandy limestone.....	6	2522
Light dove-colored limestone .....	6	2528
Dark dove-colored limestone .....	18	2546
Light gray sandy limestone ....	} Calciferous	2558
White sandy limestone .....		2599

Small flow mineral water at 2440—2446.

Heavy flow mineral water at 2578.

(Well starts near top of Waverly and goes down into Calciferous.)

## LOG No. 88.

## RAGLAND FARM—19 RECORDS.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	20	20
Blue shale .....	160	180
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	206	386
White shale .....	7	393
Brown shale .....	13	406
Lime—Ragland sand—oil .....	19	425

## LOG No. 89.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	34	34
Blue shale .....	61	95
<b>DEVONIAN SYSTEM.</b>		
Black shale ....	205	300
White shale .....	6	306
Brown shale .....	14	320
Lime—Ragland sand .....	24	344

## LOG No. 90.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	37	37
Blue shale .....	60	97
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	205	302
White shale .....	6	308
Brown shale .....	14	322
Lime—Ragland sand .....	24	366

## LOG No. 91.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	40	40
Blue shale (Waverly) .....	503	543
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	205	748
White shale ....	8	756
Brown shale .....	13	769
Lime—Ragland sand .....	18	786

LOG No. 92.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	15	15
Blue shale (Waverly) .....	533	548
DEVONIAN SYSTEM.		
Black shale .....	205	753
White shale .....	8	761
Brown shale .....	12	773
Lime—Ragland sand .....	18	791

LOG No. 93.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	40	40
Blue shale (Waverly) .....	607	647
DEVONIAN SYSTEM.		
Black shale } .....	205	852
White shale } (Devonian) .....	8	860
Brown shale } .....	12	872
Lime—Ragland sand .....	15	887

LOG No. 94.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	18	18
Blue shale .....	173	191
DEVONIAN SYSTEM.		
Black shale } .....	205	396
White shale } (Devonian) .....	8	404
Brown shale } .....	12	416
Lime—Ragland sand .....	10	426

LOG No. 95.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	40	40
Blue shale (Waverly) .....	503	543
DEVONIAN SYSTEM.		
Black shale } .....	205	748
White shale } (Devonian) .....	8	756
Brown shale } .....	12	768
Lime—Ragland sand .....	25	793

## LOG No. 96.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	20	20
Blue shale .....	141	161
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	366
White shale } (Devonian) .....	8	374
Brown shale } .....	12	386
Lime—Ragland sand .....	19	405

## LOG No. 97.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	20	20
Blue shale .....	61	81
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	12	306
White shale } (Devonian) .....	8	294
Black shale } .....	205	286
(Ragland sand missing)		
Blue shale (Niagaran) .....	178	484
Second sand .....	10	494

## LOG No. 98.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	22	22
Blue shale .....	136	158
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	363
White shale } (Devonian) .....	6	369
Brown shale } .....	9	378
Lime—Ragland sand .....	20	398

## LOG No. 99.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	17	17
Blue shale .....	542	559
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	764
White shale } (Devonian) .....	8	772
Brown shale } .....	12	784
Lime—Ragland sand .....	20	804

LOG No. 100.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	35	35
Blue shale .....	65	100
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	100	200
Brown shale } (Devonian--thinned down) .....	8	208
Brown shale } .....	14	222
Lime--Ragland sand .....	30	252
Red shale (Niagaran) .....	206	458
Lime--second sand .....	22	480
Shale .....	2	482

LOG No. 101.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	20	20
Blue shale .....	167	187
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	392
White shale } (Devonian) .....	8	400
Brown shale } .....	12	412
Lime--Ragland sand .....	14	426

LOG No. 102.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	50	50
Blue shale (Waverly) .....	449	499
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	704
White shale } (Devonian) .....	8	712
Brown shale } .....	12	724
Lime--Ragland sand .....	17	741

LOG No. 103.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	20	20
Blue shale .....	97	117
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	322
White shale } (Devonian) .....	8	330
Brown shale } .....	12	342
Lime--Ragland sand .....	15	357

## LOG No. 104.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	20	20
Blue shale (Waverly) .....	522	542
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	747
White shale } (Devonian) .....	8	755
Brown shale } .....	12	767
Lime—Ragland sand .....	20	787

## LOG No. 105.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	20	20
Blue shale .....	20	40
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	224	264
White shale .....	4	268
Lime—Ragland Sand .....	32	300
Shale .....	4	304
Stray sand—Oil .....	18	322
Shale .....	3	325

## LOG No. 106.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	34	34
Blue shale .....	61	95
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	200	295
White shale } (Devonian) .....	8	303
Brown shale } .....	12	315
Lime—Ragland sand.....	27	342

## LOG No. 107.

## EWING FARM.—8 RECORDS.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	50	50
White slate (Waverly) .....	561	611
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	816
White shale } (Devonian) .....	8	824
Brown shale } .....	15	839
Lime—Ragland sand .....	31	870

LOG No. 108.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	56	56
Blue shale (Waverly).....	607	663
DEVONIAN SYSTEM.		
Black shale .....	205	868
White shale .....	8	876
Brown shale .....	12	888
Lime—Ragland sand .....	30	918
Red shale (Niagaran) .....	245	1163
Lime—second sand .....	15	1178
Shale .....	15	1193

LOG No. 109.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	20	20
Blue shale .....	391	411
DEVONIAN SYSTEM.		
Brown shale } .....	205	616
White shale } (Devonian) .....	8	624
Black shale } .....	12	636
Lime—Ragland sand .....	24	660

LOG No. 110.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Blue shale (Waverly) .....	590	590
DEVONIAN SYSTEM.		
Black shale } .....	206	796
White shale } (Devonian) .....	5	801
Brown shale } .....	15	816
Lime—Ragland sand .....	25	841

LOG No. 111.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	50	50
Blue shale .....	555	605
DEVONIAN SYSTEM.		
Black shale .....	205	810
White shale .....	5	815
Brown shale .....	15	830
Lime—Ragland sand .....	25	855

LOG No. 112.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	40	40
Blue shale (Waverly) .....	662	702
DEVONIAN SYSTEM.		
Black shale } .....	206	908
White shale } (Devonian) .....	6	914
Brown shale } .....	14	928
Lime—Ragland sand .....	25	953

LOG No. 113.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	20	20
Blue shale (Waverly) .....	527	547
DEVONIAN SYSTEM.		
Black shale } .....	205	752
White shale } (Devonian) .....	8	760
Brown shale } .....	12	772
Lime—Ragland sand .....	22	794

LOG No. 114.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	50	50
Blue shale .....	565	615
DEVONIAN SYSTEM.		
Black shale } .....	205	820
White shale } (Devonian) .....	8	828
Brown shale } .....	12	840
Lime—Ragland sand .....	33	873

LOG No. 115.

WOOLEY FARM.—19 RECORDS.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	20	20
Blue shale .....	250	270
DEVONIAN SYSTEM.		
Black shale } .....	205	475
White shale } (Devonian) .....	8	483
Brown shale } .....	12	495
“Ragland” sand .....	30	525
Blue shale (Niagaran) .....	179	704
“Second” sand .....	20	724

# DRILLED WELLS—BATH COUNTY

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## LOG No. 116.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Sand and gravel .....	15	15
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	145	160
"Ragland" sand .....	28	188
Red shale (Niagaran) .....	157	345
"Second" sand .....	10	355
Blue shale .....	25	380
Hard, red sand .....	8	388
Soft lime .....	16	404
Dark lime .....	96	500

## LOG No. 117.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	2	2
Sand .....	155	157
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	113	270
"Ragland" sand .....	24	294
Light shale (Niagaran) .....	220	514
"Second" sand .....	83	597
Slate .....	18	615

## LOG No. 118.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	6	6
White shale .....	264	270
Brown shale.....	20	290
White shale .....	20	310
<b>DEVONIAN SYSTEM.</b>		
Brown shale (Devonian) .....	162	472
White shale .....	12	484
Brown shale .....	6	490
Lime—Ragland sand .....	19	509

## LOG No. 119.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	18	18
White shale .....	280	298
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	190	488
White shale } (Devonian) .....	10	498
Black shale } .....	15	513
Lime—Ragland sand .....	22	535

## LOG No. 120.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	10	10
White shale .....	298	308
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	207	515
Brown shale } (Devonian) .....	10	525
White shale } .....	5	530
Lime—Ragland sand .....	19	549

## LOG No. 121.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
White lime .....	50	50
Blue shale (Waverly) .....	508	558
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	13	783
White shale } (Devonian) .....	6	770
Brown shale } .....	206	764
Lime—Ragland sand .....	22	805

## LOG No. 122.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Blue shale .....	557	557
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	206	763
White shale } (Devonian) .....	6	769
Brown shale } .....	14	783
Lime—Ragland sand .....	24	807

## LOG No. 123.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Blue shale .....	284	284
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	489
White shale } (Devonian) .....	6	495
Brown shale } .....	13	508
Lime—Ragland sand .....	22	530

LOG No. 124.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Blue shale .....	298	298
DEVONIAN SYSTEM.		
Black shale } .....	207	505
White shale } (Devonian) .....	7	512
Brown shale } .....	14	526
Lime—Ragland sand .....	20	546

LOG No. 125.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Blue shale .....	550	550
DEVONIAN SYSTEM.		
Black shale } .....	207	757
White shale } (Devonian) .....	6	763
Brown shale } .....	14	777
Lime—Ragland sand .....	26	803

LOG No. 126.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Blue shale .....	307	307
DEVONIAN SYSTEM.		
Black shale } .....	207	514
White shale } (Devonian) .....	6	520
Brown shale } .....	14	534
Lime—Ragland sand .....	15	549

LOG No. 127.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	10	10
Lime .....	40	50
Blue shale (Waverly) .....	492	542
DEVONIAN SYSTEM.		
Black shale } .....	205	747
White shale } (Devonian) .....	8	755
Brown shale } .....	12	767
Lime—Ragland sand .....	22	789

214 OIL AND GAS RESOURCES OF KENTUCKY

LOG No. 128.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	50	50
Blue shale (Waverly) .....	488	538
DEVONIAN SYSTEM.		
Black shale } .....	205	743
White shale } (Devonian) .....	8	751
Brown shale } .....	12	763
Lime—Ragland sand .....	21	784

LOG No. 129.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	80	80
Blue shale (Waverly) .....	533	613
DEVONIAN SYSTEM.		
Black shale } .....	205	818
White shale } (Devonian) .....	8	826
Brown shale } .....	12	838
Lime—Ragland sand .....	20	858

LOG No. 130.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel .....	20	20
Lime .....	40	60
Blue shale (Waverly) .....	515	575
DEVONIAN SYSTEM.		
Black shale } .....	205	780
White shale } (Devonian) .....	8	788
Brown shale } .....	12	800
Lime—Ragland sand .....	26	826

LOG No. 131.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	40	40
Blue shale (Waverly) .....	511	551
DEVONIAN SYSTEM.		
Black shale } .....	205	756
White shale } (Devonian) .....	8	764
Brown shale } .....	12	776
Lime—Ragland sand .....	21	797

LOG No. 132.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel and blue shale .....	226	226
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	205	431
White shale } (Devonian) .....	8	439
Brown shale } .....	12	451
Lime—Ragland sand .....	18	469

LOG No. 133.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	6	6
Brown shale .....	5	11
White shale .....	20	31
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	140	171
White shale .....	20	191
Brown shale .....	5	196
White shale .....	9	205
Lime—Ragland sand .....	6	211
Blue shale .....	10	221
Soft lime .....	12	233
Red shale .....	155	388
Hard lime .....	12	400
Blue shale .....	10	410
“Second” sand .....	14	424
Blue shale .....	3	427

LOG No. 134.

McKINNEY FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay, sand and gravel .....	20	20
White shale .....	120	140
Brown shale .....	16	156
White shale .....	20	176
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	176	352
Lime—Ragland sand .....	15	367

In Bath county the producing (Ragland) sand is the Onondaga (Corniferous) limestone directly beneath the Devonian Black Shale.

## BELL COUNTY.

LOG No. 135.

## WELL NEAR CHENOA.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM		
Clay	27	27
Slate	45	72
Brown sand	5	77
Coal	4	81
Slate	10	91
Water sand	36	127
Shale	5	132
White sand	17	169
Slate	76	245
Coal	4	249
Slate and shale	60	309
Coal	2	311
Slate	20	331
Coal	■	333
Slate	40	373
Water sand	10	383
Shale	28	411
Coal	■	415
Fire-clay	2	417
Slate	37	454
Sand	30	484
Slate	8	492
Black sand	9	501
Slate and shale	■	501
Black sand	22	513
Slate	35	548
Black sand	5	553
Slate	5	558
White sand	11	569
Slate	3	572
White sand	11	583
Slate	30	713
Gray sand	20	733
White sand	45	778
Shale	15	793
Black sand	10	803
Shale	35	838
Black sand	2	840
Slate	15	855
Black sand	10	865
Slate	15	900
White sand	50	950

Slate .....	38	988
White sand .....	256	1244
Slate .....	4	1248
White sand .....	84	1332
Coal .....	4	1336
White sand .....	176	1512
Slate .....	5	1517
White sand .....	111	1628
Slate .....	5	1633
White sand .....	74	1707
Coal .....	2	1709
White sand .....	72	1781
Coal .....	6	1787
White sand .....	30	1817
Total depth .....		1817

This well is entirely in the Pennsylvanian which in Bell county is very thick. Deeper sands productive elsewhere may be expected to be barren in Bell county for this region is both faulted and synclinal.

BOYD COUNTY.

LOG No. 136.

BIG SANDY OIL AND GAS CO. WELL,  
Catletts Creek, 1½ Miles from Catlettsburg.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay and sand .....	36	36
Sandstone .....	104	140
Clay shale .....	100	240
Gray sand .....	30	270
Shale .....	150	420
Sand (base of Pottsville).....	150	570
MISSISSIPPIAN SYSTEM.		
Limestone—"Big Lime" .....	280	850
Black sand .....	100	950
White sand—Salt water .....	15	965
Black sand .....	35	1000
Black shale—Oil show .....	329	1329
Sand—Oil .....	51	1380
Black slate (Sunbury shale) .....	45	1425
Brown sand (Berea?) .....	15	1440
Shale and sand .....	5	1445
DEVONIAN SYSTEM.		
Black slate .....	130	1575
White slate .....	40	1615

## BELL COUNTY.

LOG No. 135.

## WELL NEAR CHENOA.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM		
Clay	27	27
Slate	45	72
Brown sand	5	77
Coal	4	81
<del>Shale</del>	10	91
Water sand	36	127
Slate	5	132
White sand	37	169
<del>Shale</del>	76	245
Coal	4	249
Slate and shale.....	60	309
Coal	2	311
Slate	20	331
Coal	2	333
<del>Shale</del>	40	373
Water sand	10	383
<del>Shale</del>	28	411
Coal	4	415
Fire-clay	2	417
Slate	37	454
Sand	30	484
Slate .....	8	492
Black sand	9	501
Slate and shale	90	591
Black sand	22	613
Slate	35	648
Black sand	5	653
<del>Slate</del>	5	658
White sand	11	669
Slate .....	3	672
White sand	11	683
Slate .....	30	713
Gray sand	20	733
White sand	45	778
Slate	15	793
Black sand	10	803
<del>Shale</del>	35	838
Black sand	2	840
Slate	35	875
Black sand	10	885
<del>Slate</del>	10	895
White sand	50	945

Slate .....	38	988
White sand .....	256	1244
Slate .....	4	1248
White sand .....	84	1332
Coal .....	4	1336
White sand .....	176	1512
Slate .....	5	1517
White sand .....	111	1628
Slate .....	5	1633
White sand .....	74	1707
Coal .....	2	1709
White sand .....	72	1781
Coal .....	6	1787
White sand .....	30	1817
Total depth .....		1817

This well is entirely in the Pennsylvanian which in Bell county is very thick. Deeper sands productive elsewhere may be expected to be barren in Bell county for this region is both faulted and synclinal.

## BOYD COUNTY.

LOG No. 136.

BIG SANDY OIL AND GAS CO. WELL,  
Catletts Creek, 1½ Miles from Catlettsburg.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay and sand .....	36	36
Sandstone .....	104	140
Clay shale .....	100	240
Gray sand .....	30	270
Shale .....	150	420
Sand (base of Pottsville).....	150	570
<b>MISSISSIPPIAN SYSTEM.</b>		
Limestone—"Big Lime" .....	280	850
Black sand .....	100	950
White sand—Salt water .....	15	965
Black sand .....	35	1000
Black shale—Oil show .....	329	1329
Sand—Oil .....	51	1380
Black slate (Sunbury shale) .....	45	1425
Brown sand (Berea?) .....	15	1440
Shale and sand .....	5	1445
<b>DEVONIAN SYSTEM.</b>		
Black slate .....	130	1575
White slate .....	40	1615

## SILURIAN SYSTEM.

Slate and shale	180	1795
Slate and shells.....	50	1945
Sand—Gas ...	5	1850
Black slate	10	1860
Black sand	15	1875
Black sand and slate	3	1878
Blue slate ...	12	1890
Brown slate	7	1897
Black slate	■	1965
Black sand—Gas	4	1974
Black shale .....	52	2126

## LOG No. 137.

RICHARDSON WELL,  
One Mile South of Catlettsburg.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	10	10
Sand	50	60
Coal	■	■
Sand and slate	167	230
Coal	5	235
Slate	270	505
Sand—Salt water and gas.....	205	710
<b>MISSISSIPPIAN SYSTEM.</b>		
Limestone—"Big lime" .....	270	980
Sand	70	1050
Slate	10	1065
Slate and shells	373	1438
Black slate (Sunbury shale) .....	20	1458
Berea sand—oil .....	45	1503
Slate	15	1518
Dark sand .....	10	1528
<b>DEVONIAN SYSTEM.</b>		
Black slate .....	40	1568
Gray sand .....	15	1583
<b>SILURIAN SYSTEM.</b>		
Slate and shells .....	447	2030
Black sand (lime?) Gas .....	40	2070
Light slate	192	2262
Brown lime .....	60	2322

The 40 foot black "sand" at depth of 2030 to 2070 feet is probably the Niagara "pay" Limestone but the section is evidently quite different from that found in the more typical occurrences in Estill, Lee and Wolfe counties to the west.

LOG No. 138.

BELLEFONTE No. 1 GAS WELL.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	9	9
Lime .....	15	24
Blue shale .....	126	150
Slate and shells .....	125	275
Blue shale .....	50	325
Shell .....	2	327
Lime .....	23	350
Slate .....	15	365
Salt sand .....	115	480
Slate—Cased at 482 .....	30	510
Water sand (base of Pottsville) .....	20	530

MISSISSIPPIAN SYSTEM.

White lime—"Big lime" .....	40	570
Slate .....	30	600
"Big Injun" (?) sand .....	20	620
Lime and slate .....	15	635
Slate .....	70	705
Sand .....	10	715
Slate—Cased at 730 .....	475	1190
Brown shale (Sunbury shale) .....	18	1208
"Berea" sand*—Show of oil and gas.....	112	1320
Red rock .....	20	1340
Slate .....	20	1360

DEVONIAN SYSTEM.

Brown shale	} (Devonian)	130	1490
White slate		35	1525
Brown shale		265	1790
White slate		80	1870
Brown shale		110	1980
Limy slate		35	2015
Brown shale		10	2025
Dark lime .....		225	2250
Light lime .....		125	2375
Slate and shells .....		40	2415
Hard white lime .....		35	2450

\*Only the upper part of this is Berea

## LOG No. 139.

GAS WELL AT BELLEFONTE BRICK PLANT.  
Hoods Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	20	20
Gravel and quicksand .....	44	64
Lime .....	11	75
Blue shale—Cased at 134 .....	85	160
Hard lime .....	50	210
Blue shale .....	170	380
Water sand .....	20	400
<b>MISSISSIPPIAN SYSTEM.</b>		
White slate—Cased at 412 .....	40	440
Hard lime—"Big lime" .....	60	500
Slate and lime shell .....	100	600
"Big Injun" (?) sand .....	50	650
Blue slate—Cased at 725.....	75	725
"Berea" (?) (Waverly) .....	450	1175
Slate (Sunbury?) .....	5	1180
Lime (?) .....	60	1240
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	470	1710

## LOG No. 140.

ROBERT PRICHARD FARM,  
Burrough near Kavanaugh.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Blue shale .....	38	38
Gravel .....	5	43
Blue shale .....	20	63
Slate .....	25	88
Sand .....	20	108
Slate .....	10	118
Sand .....	50	168
Slate and shells .....	174	342
Coal .....	3	345
Slate .....	27	372
Sand and lime .....	68	440
Sand .....	45	485
Slate .....	35	520
Sand .....	55	575
Slate .....	5	580
Brown slate and shells .....	165	745
Sand .....	20	765
Black slate, slate and shells .....	79	844
Sand .....	104	948
Slate .....	30	978
Sand .....	90	1068

MISSISSIPPIAN SYSTEM.

Black slate and lime .....	112	1180
"Big lime" .....	58	1238
Sand and slate .....	187	1425
Dark slate .....	440	1865
Black slate (Sunbury) .....	20	1885
Berea sand .....	40	1925
Slate and shells .....	40	1965

DEVONIAN SYSTEM.

Dark slate .....	482	2447
Dark slate and black lime .....	161	2608
White slate .....	128	2736
Brown slate .....	49	2785
Lime .....	95	2880

LOG No. 141.

CLINTON WELL,  
Shopes Creek.

Strata	Thickness	Depth.
PENNSYLVANIAN SYSTEM.		
Soil .....	15	15
Gray sand .....	10	25
Blue shale .....	10	35
Coal .....	4	39
Slate .....	31	70
Coal .....	4	74
Slate .....	14	88
Sand .....	26	114
White shale .....	56	170
Black slate 8 in. casing .....	65	235
White shale .....	50	285
Coal .....	3	288
Blue shale .....	14	302
Black slate .....	113	415
Sand—Salt water .....	55	470
Slate .....	20	490
Sand—Salt water .....	50	540
MISSISSIPPIAN SYSTEM.		
Limestone ("Big lime").....	90	630
Slate .....	4	634
Sand—Salt water at 705.....	131	765
Slate—Cased at 765 .....	40	805
Sand and slate .....	411	1216
Black shale (Sunbury shale) .....	14	1230
Sand (Berea?)—Oil smell .....	22	1252
Slate—Oil smell .....	10	1262
Sand—Oil smell .....	44	1306

DEVONIAN SYSTEM.

Black and white slates	.....	421	1737
Sand	(Devonian) .....	10	1747
Black and white slates	.....	283	2030
Slate and sand—Gas	.....	20	2050
Brown limestone (Ragland?)	.....	50	2100

LOG No. 142.

WELL AT SUMMIT STATION.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand and shales (Pottsville)	..... 675	675
MISSISSIPPIAN SYSTEM.		
"Big lime"	..... 60	735
Sand and shales (Waverly)	..... 590	1325
Black shale (Sunbury)	..... 20	1345
Sand—Gas (Berea)	..... 13	1358
Dark shale	..... 57	1415

Well started 52 feet above No. 6 coal and stopped just above the Devonian.

LOG No. 143.

LONGABAUGH WELL.  
Four Miles South of Ashland.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	..... 14	14
Slate	..... 10	24
White sand	..... 38	62
Slate	..... 28	90
Sand	..... 48	138
Slate	..... 38	176
Sand	..... 20	196
Black slate	..... 110	306
Sand—Salt water	..... 83	389
Slate	..... 15	404
Sand	..... 20	424
Slate	..... 15	439
Sand—Salt water	..... 61	500
MISSISSIPPIAN SYSTEM.		
"Big lime"	..... 50	550
Shales and sand—Salt water at 698.....	532	1082

# BOYLE COUNTY.

LOG No. 144.

J. C. B. NOBLE FARM,  
2 1-2 Miles S. W. of Junction City.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	18	18
Light shale .....	19	37
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	59	96
Lime .....	19	115
Light shale .....		

LOG No. 145.

J. R. AVERY FARM,  
2 1-2 Miles S. W. of Junction City.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Light shale .....	65	65
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	70	135
Lime .....	19	154
Light shale .....		

# BREATHITT COUNTY.

LOG No. 146.

OLD WELL ON FROZEN CREEK.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	12	12
White sand .....	53	65
Bastard lime (?)—Oil show .....	2	67
White sand .....	73	140

LOG No. 147.

J. H. WINTERBOTHAM FARM,  
Little Frozen Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	11	11
Sand .....	90	101
Slate .....	50	151
Sand .....	274	425
Slate .....	30	455
Sand .....	30	485

MISSISSIPPIAN SYSTEM.

Lime "Big lime" .....	175	660
Sand .....	50	710
Shale (Waverly) .....	400	1110
Brown shale (Sunbury?) .....	10	1120
Sand (Berea?) .....	35	1155

DEVONIAN SYSTEM.

Brown shale .....	218	1373
Sand (?)—Gas .....	3	1376
Lime .....	11	1387
Brown lime—Oil .....	11	1398
Sand (?) .....	6	1404

LOG No. 148.

ELKATWA WELL ON CANEY CREEK.  
R. A. Chiles, Lessee.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	1	20
Pottsville .....	565	585
MISSISSIPPIAN SYSTEM.		
Shale .....	55	640
Little Lime .....	13	653
Shale .....	2	635
Big Lime .....	145	800
Big Injun .....	90	890
Red Rock Slate .....	385	1275
Berea .....	25	1300
DEVONIAN SYSTEM.		
Brown shale .....	360	1560
White slate .....	7	1567
Cap Rock .....	25	1592
Sand (Small oil flow) .....	1	1593
Sand (Small salt water flow) .....	3	1596
Hard dry sand.....		

(This record incomplete).

LOG No. 149.

WELL ON BIG BRANCH,  
Near Haddix.

Strata	Thickness	Depth
Surface .....	8	8
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand Rock	12	20
Slate .....	2	22
Coal	3	25
Blue mud	5	30
Sand Rock	18	45
Water sand—lots of water	■	50
Sand Rock	7	57
Black shale	13	70
Blue mud	40	110
Blue Grit ..	55	165
Black shale .....	60	225
Sand Rock	35	260
Blue shale .....	10	270
Fire clay .....	8	278
Sand rock	12	290
Blue mud .....	45	325
Sand Rock	15	340
Black mud .....	50	390
Sand rock hard .....	181	571
Black slate	37	608
Sand rock	50	658
Black slate .....	87	745
Sand rock 2 ft. coal .....	185	930
<b>MISSISSIPPIAN SYSTEM.</b>		
Red rock	5	935
White slate .....	5	940
White Grit-water 110 ft.....	170	1110
Slate—in .....	30	1140
Lime .....	20	1160
Slate .....	■	1168
Lime—Gas 178 ft. in "Big"	222	1390
Black hard .....	20	1410
Lime shell	10	1420
Shale .....	■	1425
Red rock	45	1465
Brown shale .....	30	1495
Blue slate	55	1550
Lime shell .....	25	1575
Slate (Full of shell) .....	184	1759

Oil & Gas—8

DEVONIAN SYSTEM.

Brown shale .....	253	2012
Blue mud .....	2	2014
Brown shale .....	42	2056
Fire clay .....	12	2068
Cap and sand into Red Rock .....	212	2280
Total depth.....		2280

LOG No. 150.

GREEN LAWSON No. 1.

On Mill Creek which runs into North Fork of Kentucky above War Creek. Elevation 720. Drilled in about September 18, 1918.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
To top of big lime.....	421	

MISSISSIPPIAN AND DEVONIAN SYSTEMS.

To top of sand.....	1273	
First change .....	10	1283
Second change .....	2	1285
Third change .....	3	1288
Fourth change .....	5	1293
Fifth change .....	5	1298
At .. ..	10	1308

No oil or salt water.  
Slight show of oil in Berea.  
A little gas from Corniferous.

Record supplied by Bumgardner, of Filmore. W. P. Williams Oil Co., Operators. E. M. Henshaw, Contractor.

LOG No. 151.

Watkins No. 1. Little Frozen. Elevation 920 feet.  
W. P. Williams Oil Co., Operator. Henshaw & Drake, Contractors

Strata	Thickness	Depth
To Little Lime .....	573	573
To Big Lime .....	10	583
To bottom of lime.....	187	770
To white slate .....	0	770 oil and gas
To top sand .....	695	1465
To first pay .....	26	1491 oil
To second pay .....	5	1496 oil best
To stopped .....	9	1505

Flowed four to six times daily before pump was installed. Information given by Henshaw, Monday, August 12, 1918. Well finished previous week. Reported from 50-200 barrels.

LOG No. 152.

BRECK CRAWFORD FARM.

Mouth of Cope's Branch.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	8	8
Lime .....	22	30
Sand .....	55	85
Slate .....	15	100
Sand .....	62	162
Slate .....	5	167
Sand .....	13	180
Slate .....	90	270
Sand .....	80	350
Slate .....	7	357
White sand .....	80	437
Brown slate .....	3	440
<b>MISSISSIPPIAN SYSTEM.</b>		
Sandy lime .....	3	443
Sandy slate .....	29	472
Sandy lime .....	18	490
Slate ..	16	506
Lime—"Big lime" Gas at 620.....	204	710
Sandy shale .....	10	720
White shale .....	32	752
Sand .....	143	895
Sandy shale .....	290	1185
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	159	1344
Black shale .....	3	1347
Lime shell .....	1	1348
Sandy shell .....	14	1362
Black shell .....	18	1380
Brown lime .....	20	1400
White lime .....	35	1435
Sandy lime. Oil and water at 1460 .....	112	1547
Blue sandy shale .....	10	1557
Brown lime .....	10	1567

LOG No. 153.

## HARGIS FARM

Four miles up South Fork of Quicksand Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and gravel .....	12	12
Sand .....	53	65
Coal .....	2	67
Slate .....	23	90
Coal .....	2	92
Sand .....	10	102
Slate .....	43	145
Coal .....	3	148
Sand .....	10	158
Slate .....	9	167
Coal .....	3	170
Slate .....	70	240
Sand .....	10	250
Slate .....	37	287
Sand .....	60	347
Slate .....	10	357
Sand .....	200	557
Slate .....	93	650
Sand .....	200	850
Slate .....	5	855
Sand (base of Pottsville) .....	115	970

**MISSISSIPPIAN SYSTEM.**

"Little lime" .....	25	995
"Pencil cave" .....	5	1000
"Big lime" .....	190	1190
Blue sand .....	100	1290
Red rock .....	40	1330
Sandy slate .....	175	1505
"Berea Grit" (?)*—Oil and gas show.....	70	1575
Slate .....	30	1605

**DEVONIAN SYSTEM.**

Black shale .....	275	1880
White slate .....	30	1910
Lime .....	114	2024
Slate .....	2	2026

\*The Berea probably does not extend this far south.

LOG No. 154.

WELL ON WOLF CREEK AT WOLFCOAL.

Big Bird Oil. & Gas Co., Lessee.

T. H. Drake, Contractor & Driller.

Strata	Thickness	Depth
Top soil .....	10	10
<b>PENNSYLVANIAN SYSTEM.</b>		
Broken lime .....	5	15
Blue slate .....	115	130
Sand .....	15	145
Slate .....	5	150
Sand .....	25	175
Shale .....	2 cased with 177-8¼	177
Black slate .....	123	300
Sand .....	150 called salt sand	450
Shale .....	100	550
Sand .....	126	676
Coal .....	10	686
Shale .....	150	836
Sand .....	84	920
<b>MISSISSIPPIAN SYSTEM.</b>		
Shale .....	80	1000
Sand .....	70 showing of oil	1070
Red rock .....	30	1100
Lime shell .....	5 cased with 6¼ casing	1105
Sand .....	50	1155
Shale .....	50	1205
Broken lime .....	45	1250
Big lime .....	115 oil and gas flowed 60 hrs.	1365
Big lime .....	50	1415
Lime shell .....	10 green in color	1425
Shale .....	90 Red rock	1515
Blue slate .....	150	1665
Sand .....	50 Berea sand S. of O.	1715
Shale .....	35 green	1750
Shale .....	30 light	1780
Sand .....	20	1800
Shale .....	15 pink	1815
Shale .....	15 light	1830

## DEVONIAN SYSTEM.

Brown shale	210	2040
Shale	10 light	2050
Brown shale	25	2075
Sand shale	25	2100
"Corniferous" lime	100 in and still drilling.	

LOG No. 155.

DAVIS FARM.

7 Miles up South Fork of Quicksand Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand	15	15
Slate	25	40
Lime	10	50
Slate .....	425	475
Shale	100	575
Slate	10	585
Sand	30	615
Shale	5	620
Sand	280	900
MISSISSIPPIAN SYSTEM.		
Shale	90	990
"Little lime"	25	1015
White sand	55	1070
Lime	10	1080
Slate .....	11	1095
Lime .....	21	1116
"Pencil cave" .....	3	1118
"Big lime" .....	132	1300
Blue sand	80	1380
Red rock	77	1457
Slate	101	1558
Sand .....	10	1577
Slate .....	37	1612
"Berea" (?)*	41	1652
Shale	5	1657
"Berea" ?)	63	1725
DEVONIAN SYSTEM.		
Black slate .....	305	2030
White slate	11	2045
Lime	175	2230
Shale	60	2290
Slate	40	2330
Red rock	70	2400
Blue slate .....	50	2450
Red rock	50	2500

\*Berea probably not this far south.

LOG No. 156.

Well on the J. A. Turner farm 1 mile up the right fork of Longs Creek.

Started drilling January 6, 1919, finished May 5, 1919.

Drilled by Foreman and Harris.

Casing head elevation 805 feet A. T.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	13	13
Lime—blue .....	7	20
Gray sand (water).....	20	40
Lime .....	20	60
Brown slate .....	15	75
White lime .....	15	90
Blue slate .....	10	100
White sand—hard .....	5	105
Blue slate .....	20	125
Sand .....	10	135
At 130 feet gas about 500,000 cu. feet.		
Slate .....	25	160
Sand .....	15	175
Black slate .....	15	190
White sand .....	20	210
Slate .....	20	230
Blue lime .....	10	240
White shale .....	3	243
White lime .....	12	255
White slate .....	5	260
Lime .....	25	285
Black slate .....	15	300
White sand .....	20	320
Brown slate .....	10	330
Sand .....	26	356
Brown slate .....	44	390
Lime .....	10	400
Blue slate .....	5	405
"Salt" sand .....	55	460
Slate .....	20	480
Set 8¼ casing at 460.		
White shale .....	30	510
Gas at 480.		
Slate .....	50	560
White shale .....	12	572
Sand second "salt" sand.....	60	632
Blue slate .....	18	650
Sand very hard .....	175	825
White shale .....	5	830
White sand .....	90	920

MISSISSIPPIAN SYSTEM.

Blue slate .....	18	938
Sand hard .....	22	950
Blue slate .....	20	970
Little lime .....	15	985
Black slate .....	22	1007
"Big lime" set casing 42 ft in .....	183	1190
White slate .....	20	1210
Red rock .....	30	1240
Injun sand .....	15	1255
Red rock .....	52	1307
Waverly shale .....	153	1560

DEVONIAN SYSTEM.

Brown shale .....	185	1745
White slate .....	15	1760
Brown shale .....	15	1775
White slate and sand .....	15	1790
Black shale .....	17	1807
Top of "Irvine" Limestone .....		1807
"Irvine" sand .....	248	2055
Red rock .....	10	2065

Only a small upper part of the 248 feet marked "Irvine" sand is the Onondaga or Corniferous Limestone. The lower and greater part belongs in the Niagara series.

BRECKINRIDGE COUNTY.

LOG No. 157.

WELL AT CLOVERPORT.  
(Gas Well.)

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	12	12
Brown shale .....	20	32
Blue shale .....	26	58
Gray lime .....	30	88
Blue shale .....	1	89
Gray lime .....	2	91
Blue shale .....	11	102
Brown shale .....	11	113
White sand .....	32	145
Blue shale .....	38	183
Fossil lime .....	2	185
Blue Shale .....	6	191
Lime .....	7	198
Shale .....	36	234
Lime .....	28	262

Shale .....	18	280
Lime .....	20	300
Dark shale .....	8	308
Lime .....	15	323
Shale .....	6	329
Lime .....	60	389
Shale .....	12	401
Lime—Sulphur water .....	55	456
Shale .....	4	460
Lime—Salt water .....	93	553
Sand .....	20	573
Lime—Oil shows .....	299	872
Gray porous lime—Gas .....	15	887
Blue lime.		

Well starts in the Chester and is all in the Mississippian.

LOG No. 158.

ERNEST FREY FARM.

3 Miles S. E. of Cloverport.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	18	18
Lime .....	27	45
Red shale .....	25	70
Gray shale .....	25	95
Broken lime .....	30	125
White and red shales .....	75	200
Sandy lime .....	10	210
Shale .....	25	235
White lime .....	35	270
Slate .....	15	285
White lime .....	25	310
Shales .....	25	335
Gray lime—Slate break at 405.....	390	725
Brown sandy lime .....	125	850
Dark sandy lime .....	100	950
Brown lime .....	10	960
Broken dark lime—streaks of red and black shale .....	65	1025
Black shelly lime—black and red slate breaks .....	35	1060
Dark lime .....	439	1499
DEVONIAN SYSTEM.		
Black shale .....	117	1616
Light gray lime .....	14	1630
Brown lime .....	15	1645
Gray lime .....	126	1771
(Well starts in Chester).		

## LOG No. 159.

## WELL AT WEBSTER.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	895	895
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	75	970

## LOG No. 160.

## WELL AT HARDINSBURG.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	17	17
Lime .....	35	52
Sand .....	57	109
Lime .....	25	134
Sand .....	76	210
Lime .....	735	945
Lime and shale—Gas at 1055.....	435	1380
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	95	1475
Lime .....	20	1495
(Well starts in Chester).		

## LOG No. 161.

## WELL AT STEPHENSPORT.

(From drillings).

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	22	22
Gray shale .....	3	25
Gray lime .....	10	35
Brown sand .....	32	67
Gray, crinoidal lime .....	at	75
Gray lime .....	"	85
White lime .....	"	96
Gray lime .....	"	100
Black shale .....	"	130
Light dove-colored lime .....	"	135
Soft white lime .....	"	155
Gray and pink lime .....	"	230
Gray oolite .....	"	240
Lithographic lime .....	"	276
Gray oolitic lime .....	"	300
Gray and white crinoidal lime.....	"	317
White lime .....	"	335
Gray lime .....	"	350

White lime .....	at 380 and 395
Gray lime .....	" 420
Black shale .....	" 425
Gray lime .....	" 435 and 450
Light lime .....	" 470
Dark lime .....	" 475
Dark lime and black shale mixed.....	" 482 and 500
White quartzite .....	" 510
Dove-colored lime .....	" 515
Gray lime .....	" 518 and 525
Black lime .....	" 530
Gray lime .....	" 535
Black lime .....	" 540
Gray lime .....	" 555 and 585
Black lime .....	" 600
Light mottled lime .....	" 620
Dark gray lime .....	" 630
White quartzite .....	" 638
Brown lime .....	" 644 and 650
Gray lime .....	at 656, 662, 680, 686 and 692
White lime .....	at 700
Gray lime .....	at 712, 722, 735, 755 to 807 and 813
Black lime .....	at 816, 835 and 840
White lime .....	at 865
Gray and white lime .....	" 890
Dove-colored lime .....	" 900
Gray lime .....	at 915, 1030, 1045, 1050 to 1100, 1124 and 1130
White and gray lime .....	at 1138
Very dark lime .....	" 1150
Black lime .....	1155 to 1185
Sandy black lime .....	at 1230

DEVONIAN SYSTEM.

Black shale .....	1253 to 1316
(Well starts in Chester and stops in Black Shale).	

BUTLER COUNTY.

LOG No. 162.

W. J. TUCK FARM  
Near Sugar Grove.

Strata	Thickness	Dept.
MISSISSIPPIAN SYSTEM.		
Soil .....	10	10
Lime .....	173	183
White sand .....	10	193
White lime .....	15	208
Sand (Cypress) .....	207	415

Iron pyrites .....	5	420
Lime and shaly sand .....	170	590
Lime and sand—Black sulphur water at 590 .....	85	675
Salt water sand .....	105	780
Blue lime .....	220	1000
White sand (lime?) .....	38	1038
Broken lime .....	62	1100
Blue lime .....	100	1200
Slate and shale .....	50	1250
Hard dark lime .....	90	1340
Soft white lime .....	90	1430
DEVONIAN SYSTEM.		
Black shale .....	110	1540
Lime .....	20	1560
White lime .....	3	1563
Brown lime .....	49	1612
Gray lime .....	43	1655
White lime .....	12	1667
Blue lime .....	3	1670
Oil sand (lime)—Salt water .....	15	1685
(Well starts in Chester.)		

CALDWELL COUNTY.

LOG No. 163.

EUGENE YOUNG WELL  
Three miles N. E. of Fredonia.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	15	15
Slate and lime .....	10	25
Hard black lime .....	25	50
Slate .....	25	75
Gray sand .....	10	85
Slate and shaly white sand .....	40	125
White sand .....	50	175
Red shale .....	10	180
Sand .....	55	235
Slate .....	65	300
Lime—Black sulphur water .....	25	325
Slate and shale .....	75	400
Slate and shaly lime .....	40	440
Hard light lime .....	50	490
Sand and slate .....	30	520

**DRILLED WELLS—CARROLL COUNTY**

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White quartzite (?) .....	55	575
Sand .....	25	600
Lime .....	35	635
Slate .....	15	650
Hard lime .....	15	665
Pink shale .....	15	680
Lime—Salt water at 740 .....	310	990
Hard sand .....	10	1000
Lime .....	10	1010
Sand .....	10	1020
Lime .....	15	1035
Sand .....	265	1300
Blue and black hard lime .....	1044	2344

(The Devonian Shale does not show in this record but was probably included in the last 1044 feet.)

**CARROLL COUNTY.**

LOG No. 164.

**WELL AT CARROLLTON**  
(Partial record—from drillings).

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Soil .....	96	96
Light crystalline lime .....	at	96
Gray lime .....	"	180
Light crystalline lime .....	"	200
Light brown lime .....	"	230
Light magnesian lime .....	"	242
Gray magnesian lime .....	"	260
Gray lime .....	"	280
Light fine-grained lime .....	"	285
Light crystalline and gray fossil lime.....	"	335
Tyrone limestone .....	at 420, 430 and 475	
Magnesian limestone .....	at	495
Chazy limestone .....	500 to 1000	
Green shale .....	at	1000
Calciferous—"Blue Lick" water .....	1000 to 1145	

## CARTER COUNTY.

LOG No. 165.

Well near Ratcliff (Lawrence Co.).

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and gravel	40	40
Slate	21	61
Sand, hard	36	97
Black slate	18	115
Coal	4	119
Black slate	61	180
Coal	5	185
Black slate	35	270
Gray slate	15	285
White sand	10	300
Black slate	30	330
White sand	15	345
White slate	25	370
Sand, hard	---	---
White sand	---	400
Black slate	145	545
White sand	5	550
Sand, hard	15	565
White slate	85	650
Gray sand	10	660
Black slate	5	665
Sand	65	730
Gray sand	40	770
White sand	30	800
Gray sand	5	805
White sand	27	832
<b>MISSISSIPPIAN SYSTEM.</b>		
White slate	33	865
"Big lime"	112	977
Black slate	7	984
White sand	46	1030
White slate	170	1200
Slate	70	1270
White lime	10	1280
White slate	45	1325
White lime	15	1340
Gray sandy slate	60	1400
Black slate	35	1435
Brown shale (Sunbury?)	17	1452
Gray sand (Berea ?)	18	1470
Black slate	2	1472
Gray lime	1	1474

White slate .....	3	1477
Gray lime .....	5	1482
White slate .....	10	1492
Gray lime—Oil show .....	20	1512
White slate .....	6	1518
Gray lime .....	67	1585
White slate .....	10	1595

DEVONIAN SYSTEM.

Black slate .....	95	1690
White slate .....	50	1740
Black slate .....	200	1940
White slate .....	232	2172
White lime and dark slate .....	8	2180
"Ragland" sand (?)—Oil and gas show....		

LOG No. 166.

GUFFEY WELL.

Near Grayson.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand .....	28	28
Black slate .....	30	58
Sand .....	12	70
MISSISSIPPIAN SYSTEM.		
Black slate .....	10	80
"Big lime" .....	20	100
Green sandy shale .....	230	330
Gray slate and sand shells	270	600
Sandy and shale .....	50	650
Sand, slate and shells .....	85	735
Black slate (Sunbury) .....	22	757
Sand—Oil and gas (Berea)* .....	112	869
Gray slate .....	25	894
Red slate .....	6	900

DEVONIAN SYSTEM.

Black slate .....	116	1016
White slate .....	5	1021
Black slate .....	169	1190
White slate .....	20	1210
Black slate .....	95	1305
White slate .....	118	1423
Lime—Ragland sand—Oil and gas show	2	1425
Lime—Salt water at 1475.....	55	1480

\*Only upper part in Berea.

(This record is very irregular).

## LOG No. 167. CATHERINE GREGORY FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel .....	10	10
Blue shale .....	15	25
White lime—"Big lime" .....	20	45
White sand .....	115	160
Blue shale .....	320	480
White shale .....	180	660
White sand .....	108	768
White lime .....	60	828
Blue shale .....	30	858
<b>DEVONIAN SYSTEM.</b>		
Black shale } .....	260	1118
White shale } (Devonian) .....	12	1130
Black shale } .....	40	1170
White shale } .....	90	1260
Lime—Ragland sand? .....	70	1330
<b>SILURIAN SYSTEM.</b>		
White lime .....	110	1440
White sand .....	10	1450
White lime .....	40	1490
White sand .....	60	1550
Red rock .....	49	1599

## LOG No. 168.

## RICE OIL COMPANY.

## JEFF RIFFE FARM,

Two Miles N. E. of Webbville.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	30	30
Light slate .....	30	60
Sand, hard .....	40	100
Black slate .....	190	290
Sand .....	10	300
Black shale .....	40	340
Sand .....	5	345
White slate .....	30	375
Sand, hard .....	25	400
Black slate .....	150	550
Sand, hard .....	10	560
White slate .....	90	650
Sand, hard .....	10	660
Black slate .....	70	730
Sand, hard .....	45	775
Sand .....	30	805
Sand, hard .....	5	810
Sand .....	25	835

MISSISSIPPIAN SYSTEM.

Slate .....	35	870
Lime .....	55	1035
Slate .....	5	980
Lime .....	105	975
White slate .....	240	1275
Lime (?) .....	5	1280
Slate .....	45	1325
Lime (?) .....	20	1345
White slate .....	55	1400
Black slate .....	55	1455
Berea Grit (?) .....	25	1470
Broken lime and slate .....	25	1495
Lime (?) .....	15	1510
Slate .....	10	1520
Lime (?) .....	70	1590
Slate .....	15	1605

DEVONIAN SYSTEM.

Black slate .....	90	1695
White slate .....	50	1745
Black slate .....	200	1945
Light slate .....	255	2200
Sandy lime—hard (Corniferous).....	47	2247

LOG No. 169.

WELL AT SOLDIER.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Shale .....	128	133
Sand .....	307	440
DEVONIAN SYSTEM.		
Black shale .....	187	627
"Oil sand."		

LOG No. 170.

WELL NEAR DENTON.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	5	5
Quicksand .....	65	70
Lime (?) .....	80	150
Shale .....	50	200
White sand .....	50	250
Shale .....	50	300
Sand (base of Pottsville) .....	20	500

## LOG No. 167. CATHERINE GREGORY FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Gravel	10	10
Blue shale .....	15	25
White lime—"Big lime"	20	45
White sand	115	160
Blue shale	320	480
White shale	180	660
White sand	108	768
White lime ----	60	828
Blue shale	30	858
<b>DEVONIAN SYSTEM.</b>		
Black shale	260	1118
White shale	12	1130
Black shale	40	1170
White shale	90	1260
Lime—Ragland sand? .....	70	1330
<b>SILURIAN SYSTEM.</b>		
White lime	110	1440
White sand	10	1450
White lime .....	40	1490
White sand	60	1550
Red rock ..	49	1599

## LOG No. 168.

RICE OIL COMPANY.  
JEFF RIFFE FARM,  
Two Miles N. E. of Webbville.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	30	30
Light slate .....	30	60
Sand, hard .....	40	100
Black slate .....	190	290
Sand .....	10	300
Black shale .....	40	340
Sand .....	5	345
White slate .....	30	375
Sand, hard	25	400
Black slate	150	550
Sand, hard	10	560
White slate	90	650
Sand, hard .....	10	660
Black slate	70	730
Sand, hard	45	775
Sand .....	30	805
Sand, hard	5	810
Sand	25	835

MISSISSIPPIAN SYSTEM.

Slate .....	35	870
Lime .....	55	1035
Slate .....	5	980
Lime .....	105	975
White slate .....	240	1275
Lime (?) .....	5	1280
Slate .....	45	1325
Lime (?) .....	20	1345
White slate .....	55	1400
Black slate .....	55	1455
Berea Grit (?) .....	25	1470
Broken lime and slate .....	25	1495
Lime (?) .....	15	1510
Slate .....	10	1520
Lime (?) .....	70	1590
Slate .....	15	1605

DEVONIAN SYSTEM.

Black slate .....	90	1695
White slate .....	50	1745
Black slate .....	200	1945
Light slate .....	255	2200
Sandy lime—hard (Corniferous).....	47	2247

LOG No. 169.

WELL AT SOLDIER.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Shale .....	128	133
Sand .....	307	440
DEVONIAN SYSTEM.		
Black shale .....	187	627
“Oil sand.”		

LOG No. 170.

WELL NEAR DENTON.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	5	5
Quicksand .....	65	70
Lime (?) .....	80	150
Shale .....	50	200
White sand .....	50	250
Shale .....	50	300
Sand (base of Pottsville) .....	20	500

## MISSISSIPPIAN SYSTEM.

"Big lime"	90	590
"Waverly"	390	980
Black shale (Sunbury)	90	1070
"Berea sand"	100	1170

## DEVONIAN SYSTEM.

Black shale	500	1670
Blue shale	100	1770
"Clinton"	70	1840
*Driller's distinction.		

## LOG No. 171.

## STRAIGHT CREEK COAL CO. WELL NEAR DENTON.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	20	20
White sandy shale	60	80
White slate	20	100
Brown sand	58	158
Coal	2	160
Lime (?) and sand	110	270
Shale	46	316
Lime	30	346
White slate	10	356
Sand, hard	9	365
Coal.		
White sand	60	425
Black slate	10	435
White lime	15	450
White sand .....	60	510
MISSISSIPPIAN SYSTEM.		
White slate	14	524
White sand .....	46	570
Lime (?)	109	679
White shale	443	1122
Lime (?)	125	1247
White slate ....	28	1275
DEVONIAN SYSTEM.		
Brown shale	447	1722
Lime and shale	40	1762
White shale	68	1830
White lime	80	1910
White shale	10	1920
White lime	95	2015

# CHRISTIAN COUNTY.

LOG No. 172.

WELL ONE MILE SO. OF HOPKINSVILLE.

Partial record. From drillings.

## MISSISSIPPIAN SYSTEM.

- At 25, 35 and 65—Light colored oolitic lime.
- At 85—White oolitic lime.
- At 95, 122, 140, 175, 195, 220, 255 and 280—Light gray lime.
- At 315 and 365—Dark gray lime.
- At 380, 390 and 415—Light gray lime.
- At 435, 455, 465, 495, 500, 520, 540 and 555—Very dark lime.
- At 575—Gray lime.
- At 585—Brown lime.
- At 606, 620 and 630—Gray lime.
- At 652 and 680—Black lime.
- At 690, 700, 725, 740 and 750—Gray lime.
- At 780—Black lime.
- At 800, 810, 850, 860 and 875—Gray lime.
- At 911, 920 and 930—Black lime.
- At 950—Gray lime.
- At 975 and 1015—Black lime.
- At 1060 to 1440—Black shale.
- At 1480—Gray lime.

## DEVONIAN SYSTEM.

- At 1520, 1530 and 1555—Black shale.
- At 1560—Gray lime.
- At 1565, 1570 and 1585—White lime.
- At 1610 and 1612—Light colored lime.
- Oil shows at 25 and 555.

# CLAY COUNTY.

LOG No. 173.

Nancy Potter, No. 1, on Blue Salt Run, a Branch of Goose Creek. 8 Miles west of Manchester. La Salle Oil Co., Operators. Elevation about 950 feet.

	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	9	9
Shell .....	3	12
Gravel .....	6	18
Sand .....	4	22
Coal .....	5	27
Dark shale .....	131	158
Hard sand .....	106	264
Brown shale .....	10	274
Sand .....	146	420
		Base of Conglomerate

## MISSISSIPPIAN SYSTEM.

Dark shale .....	30	450	
Dark lime .....	10	460	
Light shale .....	25	485	
Red rock .....	15	500	
White .....	50	550	
Red rock .....	5	555	
Light shale .....	5	560	
Big lime .....	240	800	Gas at 700
Big Injun .....	55	855	} Waverly
Red rock .....	7	862	
Dark shale .....	528	1190	

## DEVONIAN SYSTEM.

Black shale .....	135	1325	Devonian black shale
Light shale .....	25	1350	Gas at 1350
Black shale .....	10	1360	
Black lime .....	5	1365	
Brown shale .....	35	1400	
Gray lime, hard .....	15	1415	Base of Devonian

## SILURIAN SYSTEM.

Blue slate .....	5	1420	} Silurian
White slate .....	35	1505	
Red rock .....	5	1510	
Blue slate .....	25	1535	
Dark sand .....	10	1545	
Green slate .....	115	1550	

## ORDOVICIAN SYSTEM.

Brown lime .....	10	1670	Ordovician
Green slate .....	25	1695	
Soft white lime .....	5	1700	
Green slate .....	10	1710	
Red rock .....	20	1730	
Green slate, very hard..	12	1742	
Gray lime, hard .....	12	1760	
Slate and shells....	20	1780	
Gray slate .....	50	1830	
Gray lime .....	20	1850	
Lime, shells, slate .....	25	1875	
Lime and flint with flakes of slate.....	15	1890	
Lime, flint .....	170	2060	
Gray lime .....	40	2100	
Lime and slate .....	50	2160	Trenton
Blue slate .....	30	2190	
Gray lime, dark .....	15	2205	

DRILLED WELLS—CLAY COUNTY

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LOG No. 174.

DIAMOND DRILL HOLE.

Mouth of Big Creek.

Approximate Elevation 810 ft. A. T.

PENNSYLVANIAN SYSTEM.	Thickness		Depth	
	Feet	In.	Feet	In.
Sand and gravel	10	0	10	0
Sandstone	42	0	52	0
Slate	1	4	53	4
Coal .....	0	4	53	8
Slate .....	4	10	58	6
Sandstone	36	6	95	0
Gray slate	4	0	99	0
Coal .....	2	2	101	2
Fire clay .....	0	10	102	0
Sandstone .....	4	0	106	0
Slate .....	25	0	131	0
Sandstone .....	15	4	146	4
Slate .....	8	8	155	0
Gray shale .....	47	6	202	6
Coal .....	1	6	204	0
Fire clay .....	1	0	205	0
Sandy shale	10	0	215	0
Gray shale	13	10	228	10
Bony coal ..	0	5	229	3
Sandstone	23	9	253	0
Sandy shale	6	3	259	3
Slate .....	1	9	261	0
Black shale	32	7	293	7
Sandstone	2	5	296	0
Black shale	6	3	302	3
Sandy shale	12	1	314	4
Black shale	33	8	352	0
Sandy shale	18	4	371	4
Black shale	13	2	384	6
Coal .....	0	4	384	10
Shale .....	0	2	385	0
Coal	1	6	386	6
Fire clay .....	2	9	389	3
Coal .....	0	3	389	6
.....	2	0	391	6
Coal	0	2	391	8
Shale .....	2	0	393	8
Coal .....	0	2	393	10
Sandy shale	7	2	401	0
Sandstone	19	0	420	0
Sandy shale	11	6	431	6
Black shale	9	6	441	0

Sandstone .....	22	0	463	0
Sandy shale .....	4	0	467	0
Sandstone .....	35	6	502	6
Conglomerate .....	0	6	503	0
Black shale .....	7	8	510	8
Sandstone .....	65	4	576	0
Coal .....	0	6	576	6
Sandstone .....	4	4	580	10
Sandy shale .....	0	10	581	8
Sandstone .....	2	6	584	2
Sandy shale .....	1	0	585	2
Sandstone .....	35	4	620	6
Sandstone and coal.....	2	7	623	1
Sandy shale .....	11	11	635	0
Sandstone .....	41	0	676	0
Hard white stone .....	41	0	717	0
Hard broken stone .....	5	0	722	0
Dark shale .....	1	3	723	3
Hard broken sandstone .....	24	5	747	8
Coal .....	0	1	747	9
Sandstone .....	62	7	810	4
Conglomerate .....	1	8	812	0
Black slate .....	0	1	812	1
Coal .....	0	9	812	10
Conglomerate .....	1	2	814	0
Flint clay .....	3	0	817	0
Sandy shale .....	12	0	829	0
White sandstone .....	6	0	835	0
Sandy shale .....	6	4	841	4
Black slate .....	1	6	842	10
Sandy shale .....	9	8	852	6
White sandstone .....	12	0	864	6
Dark shale .....	0	6	865	0
Broken white stone .....	2	0	867	0
Sandstone .....	29	4	896	4
Conglomerate .....	0	2	896	6
Slate .....	3	8	900	3
Coal .....	0	10	901	0
Flint clay .....	1	0	902	0
Sandstone .....	4	6	906	6
Dark slate .....	10	6	917	0
Shale .....	5	0	922	0
Sandy shale .....	5	0	927	0
White sandstone .....	28	0	955	0
Hard white stone .....	7	0	962	0
Sandstone .....	47	0	1009	0

Well begins about 350 feet below the Fire clay coal and is all in the Pottsville.

CLINTON COUNTY.

LOG No. 175.

SARAH SIDWELL FARM.

Strata	Depth
MISSISSIPPIAN SYSTEM.	
Top of well .....	0
DEVONIAN SYSTEM.	
Top of black shale (Devonian).....	350
Bottom of black shale .....	380
Lime—Gas and oil show at 649.....	380 to 1150

W. J. WILLIAMS FARM.

Strata	Depth	
MISSISSIPPIAN SYSTEM.		
Top of well.....	0	
DEVONIAN SYSTEM.		
Top of black shale	} (Devonian)	.....330
Bottom of black shale		.....355
Lime—Oil show 836 to 854.		

CUMBERLAND COUNTY.

LOG No. 176.

WM. HURT FARM.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Blue lime .....	60	60
Gray lime—Gas .....	125	185
Gray lime .....	140	325
Black lime—Gas .....	45	370
Gray lime .....	105	475
Gray lime—Gas .....	30	505
Black lime .....	40	545
White lime .....	90	635
Gray lime .....	215	850
Gray lime—Oil and gas show .....	65	915
Gray lime .....	340	1255
White lime .....	7	1262

LOG No. 177.

WM. HURT FARM.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Blue lime .....	300	300
Gray lime .....	100	400
Black lime .....	220	620
Gray lime—Pencil cave at 625.....	30	650
White lime .....	70	720
Gray lime .....	280	1000

248 OIL AND GAS RESOURCES OF KENTUCKY

LOG No. 178.

A. M. FUDGE FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Blue lime—Gas at 150.....	200	200
Black lime—Gas at 285—Oil show at 452..	255	455
Gray lime	115	570
Black lime—Flowing oil at 635.....	65	635
Gray lime—Pencil cave at 645.....	365	1000

LOG No. 179.

WM. BRYANT FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
White lime	50	50
Blue lime—Gas at 225.....	200	250
Gray lime	50	300
Blue lime	75	375
Gray lime	200	575
Dark gray lime—Pencil cave at 600.....	50	625
White lime	100	725
Gray lime	307	1032

LOG No. 180.

WM. BRYANT FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Blue lime	100	100
Black lime	380	480
White lime—Gas show	20	500
Brown lime	20	520
White lime	20	540
Brown lime	20	560
White lime	15	575
Gray lime	83	658
Pencil cave	2	660
White lime .....	90	750
Brown lime	360	1110
Gray lime	270	1380
Brown lime	20	1400

LOG No. 181.

B. F. IRVINE FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Blue lime—Oil show	75	75
Black lime—Salt water	125	200
Gray lime—Sulphur water	200	400
White lime—Salt water	40	440
Gray lime—Fresh water	20	460
Black lime—Gas	60	520
Gray lime—Pencil cave	50	570
Gray lime—Bitter water	40	610
Gray lime—Salt water	65	675
White lime—Salt water	75	750
Gray lime—Salt water	250	1000

LOG No. 182.

ELLEN SMITH FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Soil .....	10	10
Blue lime .....	90	100
Black lime .....	20	120
Gray lime—Gas at 135.....	72	192
Brown lime—Gas at 220.....	60	252
Black lime .....	150	402
Gray lime .....	108	510
Black lime—Gas at 520.....	80	590
Green pencil cave .....	3	593
Brown lime—Oil show at 975.....	388	981
Gray lime .....	6	987
Brown lime .....	18	1005

LOG No. 183.

CLOYD HEIRS FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Soil .....	42	42
Blue lime .....	160	202
Black lime .....	30	232
Gray lime .....	40	272
Brown lime .....	30	302
Gray lime .....	75	377
Brown lime .....	70	447
Black lime—Gas at 445 .....	48	495
Brown lime .....	7	502
Green pencil cave .....	2	504

Brown lime	341	845
Gray lime	18	863
Brown lime	157	1020
Gray lime	60	1080
Brown lime	40	1120
Black lime	30	1200
Brown lime	60	1260
Gray lime	60	1320
Brown lime	20	1340
White lime	20	1360
Brown lime	30	1390
White lime	30	1420
Gray lime	30	1500

## LOG No. 184.

## J. E. HEARD FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Gray lime	270	270
Brown lime	55	325
Gray lime	75	400
Brown lime	48	448
Gray lime—Gas at 448	44	492
Dark blue lime—Oil show at 492.....	12	504
Gray lime—Oil show at 505	12	516
Green pencil cave	3	519
Gray lime	6	525
Brown lime—Gas at 525.....	24	549
Gray lime ....	60	609
Brown lime	29	638
Dark blue lime	15	653
Gray lime	32	685
Brown lime	215	900
Gray lime	40	940
Brown lime .....	60	1000

## LOG No. 185.

## J. E. HEARD FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Blue lime .....	300	300
Gray lime	100	400
Black lime	100	500
Gray lime	25	525
Pencil cave	10	535
Gray lime	468	1003
Oil at 603, 671, 701 and 910.		

LOG No. 186.

J. E. HEARD FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Blue lime	260	260
Gray lime.....	103	363
Brown lime	33	396
Gray lime	129	525
Black lime	30	555
Lime and sand	18	573
Green pencil cave	2	575
Brown lime	30	605
Gray lime	13	623
Lime and sand—Oil show at 654.....	47	670
Brown lime	45	715
Gray lime	43	758
Brown lime	42	800

LOG No. 187.

J. E. HEARD FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Blue lime	75	75
Gravel (?)	3	78
Blue lime	80	158
Black lime	50	208
Gray lime	30	238
Blue lime	45	283
Lime and sand—Heavy gas flow at 290.....	15	298
Brown lime	140	438
Gray lime	55	493
Black lime	30	523
Lime and sand	9	532
Green pencil cave	3	535
Brown lime	30	565
Green lime .....	56	621
Brown lime—Oil at 643.....	43	664

LOG No. 188.

J. E. HEARD FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Blue lime .....	60	60
Black lime .....	30	90
Gray lime	60	150
Blue lime	70	220
Lime and sand	65	285
Brown lime—Gas at 290.....	110	395

Gray lime	75	470
Black lime	30	500
Lime and sand	10	510
Green pencil cave	3	513
Brown lime—Gas at 520.....	25	538
Lime and sand—Gas at 555.....	17	555
Brown lime	167	722
Oil at 567, 629 and 712. Gas at 625 and 685.		

## LOG No. 189.

## J. E. HEARD FARM.

## ORDOVICIAN SYSTEM.

Strata	Thickness	Depth
Blue lime	100	100
Gray lime—Gas at 408.....	350	450
Black lime	40	490
Pencil cave	10	500
Gray lime—Oil show at 532 and 765.....	401	901

## LOG No. 190.

## J. E. HEARD FARM.

## ORDOVICIAN SYSTEM.

Strata	Thickness	Depth
Blue lime	200	200
Gray lime	200	400
Black lime	100	500
Gray lime	280	780
Pencil cave at 525. Oil at 553 and 756.		

## LOG No. 191.

## J. E. HEARD FARM.

## ORDOVICIAN SYSTEM.

Strata	Thickness	Depth
Soil	54	54
Blue lime	80	134
Gray lime	30	164
Blue lime	36	200
Black lime—Gas at 250	50	250
Blue lime—Gas at 310	60	310
Brown lime	100	410
Blue lime .....	35	445
Black lime—Oil at 445.....	30	475
Gray lime	5	480
Green pencil cave	3	483
Brown lime	29	512
Sandy lime—Oil at 561.....	49	561
Lime .....	244	805

LOG No. 192.

J. W. CLOYD FARM.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Lime	350	350
Gray sand (?)	125	475
Lime	33	508
White slate	2	510
White lime—Oil show at 522.....	190	700
Sand ?)	150	850
Gray lime	30	880
White slate	10	890
Dark lime	35	925
White lime	25	950

LOG No. 193.

W. R. NEELY FARM.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Soil .....	8	8
Blue lime	142	150
Black lime	182	292
Gray lime	18	300
Brown lime	80	380
Gray lime	50	430
Brown lime	42	472
Black lime	53	525
Gray lime and sand	10	535
Pencil cave	2	537
Gray lime	4	541
Brown lime	100	641
Lime and sand	50	691
Brown lime	183	874

LOG No. 194.

W. J. HUTCHINS FARM.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Blue lime—Gas at 80.....	80	80
Gray lime	120	200
Brown sand	6	206
Gray sand	7	213
Black lime	6	219
Brown sand	6	225
Black lime—Gas at 325.....	305	530
Brown lime	75	605

Gray lime	30	635
Black lime	29	665
Gray lime	11	686
Green pencil cave	3	689
Brown lime	331	1000

## LOG No. 195.

## A. W. BRYANT FARM.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Soil	10	10
Blue lime	100	110
Black lime	20	130
Gray lime	12	142
Black lime	135	277
Blue lime	130	407
Black lime	80	487
Brown lime—Oil at 555	83	575
Black lime	83	658
Green pencil cave	2	660
Brown lime	40	700
Brown sand (?)	85	785
Brown lime	279	1064
Black lime	15	1079
Brown lime	156	1235
White lime	115	1350
Brown lime	41	1391
Brown sand (?)—Oil show at 1391.....	39	1421
White flint	40	1461
Brown lime	89	1550
Gray lime .....	60	1610
Brown lime	70	1680

## LOG No. 196.

WELL AT NEELY'S FERRY,  
3 1-2 Miles below Burksville.

Strata	Thickness	Depth
<b>ORDOVICIAN SYSTEM.</b>		
Red clay	25	25
Gray lime	190	215
Blue slate	35	250
Brown lime	200	450
Black lime—Pencil cave at 621.....	215	665
Brown lime	74	739
Black lime	21	760
Gray lime	5	765

LOG No. 197.

WELLS AT SALT LICK BEND (PARTIAL RECORDS).  
GRAVES FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at .....	519
Bottom at .....	625

LOG No. 198.

CLAY CLOYD FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at .....650 and	825
Bottom at .....	960

LOG No. 199.

RICHARDSON FARM.

ORDOVICIAN SYSTEM.	Depth
Oil and salt water at .....	440
Oil at ..... 609 and	675
Bottom at .....	700

LOG No. 200.

RICHARDSON FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at ..... 390 and	500
Pencil cave at .....	475
Gas at .....	520
Bottom at .....	720

LOG No. 201.

R. B. CLOYD FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at ..... 305 and	540
Gas at .....	730
Oil and gas .....	732
Oil at .....	769
Gas at .....	800
Bottom at .....	839

LOG No. 202.

R. B. CLOYD FARM.

ORDOVICIAN SYSTEM.	Depth
Pencil cave at.....	470
Oil at ..... 568 and	586
Bottom at .....	705

## LOG No. 203.

## R. B. CLOYD FARM.

ORDOVICIAN SYSTEM.	Depth
Pencil cave at .....	520
Oil at .....	641
Bottom at .....	711

## LOG No. 204.

## McCOMAS FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at .....	548

## LOG No. 205.

## GARMON FARM.

ORDOVICIAN SYSTEM.	Depth
Gas at ..... 37, 180 and	205
Pencil cave at .....	542
Bottom at .....	910

## LOG No. 206.

## D. W. CLOYD FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at .....	90
Salt water at .....	430
Pencil cave at .....	480
Oil at ..... 518 and	597

## LOG No. 207.

## D. W. CLOYD FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at .....	435
Pencil cave at .....	475
Bottom at .....	800

## LOG No. 208.

## WELLS ON MARROWBONE CREEK.

## J. E. TAYLOR FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at .....	248
Bottom at .....	258

## LOG No. 209.

## McCOMAS FARM.

ORDOVICIAN SYSTEM.	Depth
Oil at .....	520
Oil show at .....	594
Bottom at .....	615

LOG No. 210.

McCOMAS FARM.

ORDOVICIAN SYSTEM.	Depth
Oil shows at .....	180, 245 and 750 to 810
Gas show at .....	740
Bottom at .....	875

LOG No. 211.

COLLINS FARM.

ORDOVICIAN SYSTEM.	
Gas at .....	95, 105, 165 and 210
Pencil cave at .....	612
Bottom at .....	740

LOG No. 212.

ALEXANDER FARM.

ORDOVICIAN SYSTEM.	
Gas at .....	172, 315, 380 and 580
Pencil cave at .....	620
Bottom at .....	705

LOG No. 213.

BUCHANNON FARM.

ORDOVICIAN SYSTEM.	
Gas at .....	110, 150 and 225
Pencil cave at .....	545

LOG No. 214.

WELLS IN WASH'S BOTTOM.

R. G. ALLEN FARM.

ORDOVICIAN SYSTEM.	
Oil at .....	640
Bottom at .....	805

LOG No. 215.

PHILPOT FARM.

ORDOVICIAN SYSTEM.	
Oil at .....	500 and 625
Bottom at .....	665

LOG No. 216.

GOFF FARM.

ORDOVICIAN SYSTEM.	
Oil at .....	765
Bottom at .....	785

LOG No. 217.

STOCKDEN FARM.

ORDOVICIAN SYSTEM.	
Oil show at .....	545
Bottom at .....	800

LOG No. 218.

## OLD CUMBERLAND COUNTY WELLS.\*

Name	Depth	Date
Garbert, opposite Creelsboro.....	225	1861

LOG No. 219.

Crocus, mouth of Crocus creek.....	190	1865
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LOG No. 220.

Egbert .....	270	1865
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LOG No. 221.

Old American, Renox creek.....	171	1829
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LOG No. 222.

Sherman .....	276	1866
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LOG No. 223.

Gilbreath, Bear creek .....	20	
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LOG No. 224.

Phe ps, Oil fork .....	50	1866
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## DAVIESS COUNTY.

LOG No. 225.

## MACEO WELL (PARTIAL RECORD).

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM and		
MISSISSIPPIAN SYSTEM.		
Unrecorded.		
		2300
Black shale .....	45	2345
Dark impure limestone .....	255	2600
Hard black shale .....	106	2706
Gray calcareous shale .....	30	2736
DEVONIAN SYSTEM.		
Black shale .....	474	2810
Gray limestone .....	15	2825
Very light limestone .....	33	2858
Gray limestone .....	87	2945
White limestone .....	15	2960
Gray limestone .....	104	3064
Yellow limestone .....	81	3145
Dark gray limestone .....	15	3160
(Base of Devonian indefinite.)		

\*The dates and depths of these wells are not vouched for but are given as commonly reported.

LOG No. 226

S. T. LOGSDON FARM.

Panther Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	28	28
White sand .....	2	30
Blue clay .....	110	140
Coal .....	1	141
Sand, hard .....	9	150
Black shale .....	70	220
Sand, hard .....	10	230
Slate .....	85	315
Sand .....	80	395
Slate .....	80	475
Sand .....	10	485
Slate .....	70	555
Red rock .....	10	565
Black slate .....	55	620
Sand .....	10	630
Slate .....	100	730
Sand .....	20	750
Sandy shale .....	20	770
Blue slate .....	65	835
White slate .....	35	870
Black slate .....	20	890
Sand .....	25	915
Blue slate .....	35	950
Sandy shale .....	10	960
Slate .....	12	972
Sand .....	8	980
White slate .....	20	1000
Gray slate .....	8	1008
Lime .....	22	1030
White slate .....	10	1040
Sand .....	10	1050
Blue slate .....	65	1115
Lime .....	85	1200
Slate .....	50	1250
Sand .....	25	1275
Slate .....	155	1430
Sand .....	30	1460
Sand .....	20	1480

## MISSISSIPPIAN SYSTEM.

Lime .....	90	1570
Red rock .....	30	1600
Slate .....	60	1660
Sand .....	50	1710
Lime .....	30	1740
Slate .....	10	1750
Sand .....	12	1762
Lime—Cased at 1762 ...	4	1766
Sand .....	10	1776

LOG. No. 227.

O. T. GORE FARM.

1½ miles S. E. of Utica.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	30	30
Shale with breaks .....	57	87
Sand .....	50	137
Shale with breaks .....	423	560
Slate .....	10	570
Shale with breaks .....	70	640
Sand .....	50	690
Slate .....	6	696
Sand .....	44	740
Slate .....	23	763
Sand .....	30	793
Slate .....	11	804
Sand .....	32	836
Slate .....	32	868
Sand .....	36	904
Slate .....	25	929
Sand .....	31	960
Slate .....	18	978
Sand .....	22	1000
Slate .....	23	1023
Sand .....	20	1043
Slate .....	7	1050
Sand .....	20	1070
Slate .....	20	1090
Sand .....	30	1120
Slate .....	5	1125
Sand .....	5	1130
Sand .....	10	1140
Sand .....	80	1220
Slate .....	10	1230
Sand .....	70	1300
Slate .....	10	1310

MISSISSIPPIAN SYSTEM.

Red Lime .....	10	1320
White lime .....	220	1540
Sandy lime .....	99	1639
Sand .....	6	1645
Lime .....	50	1695
Sand .....	5	1700
Lime .....	50	1750
Sand .....	50	1800
Lime .....	1020	2820
Brown sand .....	80	2900
White slate .....	20	2920
Lime .....	60	2980
White slate .....	40	3020
Brown Sand .....	60	3080
Lime .....	50	3130
Sand with lime shells .....	220	3350
Lime .....	75	3425
Sand .....	10	3435
White Lime .....	35	3470

EDMONSON COUNTY.

LOG. No. 228.

RHODA WELL  
(Partial record).

Top of Devonian shale at.....	1020
Base of Devonian shale at.....	1136
Dark and gray lime .....	1136 to 1210
Gray sand (lime)—oil ....	1210 to 1228
Dark and gray lime .....	1228 to 1320
Brown lime—Gas .....	1320 to 1325
Dark brown lime .....	1325 to 1370
Dark lime or shale .....	1370 to 1407

ELLIOTT COUNTY.

LOG. No. 229.

J. F. DIALS FARM.  
Isonville.

Strata	Thickness	Depth
Quicksand .....	25	25
PENNSYLVANIAN SYSTEM.		
Slate .....	115	140
Sand .....	30	170
Slate—Cased at 180 .....	10	180
Dark sand .....	20	200

MISSISSIPPIAN SYSTEM.

Slate .....	40	240
White lime—"Big lime"—Gas at 338 .....	150	390
Dark sand (Probably Big Injun) .....	15	405
Slate and shell—Cased at 560.....	225	630
Lime .....	40	670
Gray sand—Gas at 715 .....	80	750
Slate .....	20	770
Sand .....	95	865
Slate and shell .....	29	894

DEVONIAN SYSTEM.

Black shale .....	376	1270
White slate .....	77	1347
Sandy lime .....	35	1382
Gas at 1348		
Strong gas at 1366		
Bottom of well at .....		1500

LOG No. 230.

JESS PETERS FARM.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	19	19
Slate .....	156	175
Lime .....	25	200
Sand .....	100	300
Slate .....	10	310
Sand .....	20	330

MISSISSIPPIAN SYSTEM.

Slate .....	38	368
"Big lime" .....	140	508
Slate .....	207	715
Lime .....	68	783
Sand—Oil show .....	53	836

ESTILL COUNTY.

LOG No. 231.

WELL AT MOUTH OF RED CREEK.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	38	38
DEVONIAN SYSTEM.		
Black shale .....	55	93
Corniferous lime .....	7	100
Blue shale .....	10	110
Yellow sandrock (?) .....	40	150
Soapstone .....	38	188
Pink shale .....	22	210

LOG No. 232.

TOM WEST FARM. MILLERS CREEK.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	28	28
Blue shale .....	7	35
DEVONIAN SYSTEM.		
Black shale } .....	58	93
Brown shale } (Devonian) .....	51	144
White shale } .....	2	146
Brown lime—Ragland sand .....	4	150
Lime .....	88	238
Blue shale .....	49	287
Pink shale .....	46	333
Blue shale .....	40	373
Hard shell .....	4	377
Blue shale .....	8	385
Pink shale .....	18	403
Hard shell .....	4	407
Blue shale .....	8	415
Lime shell .....	2	417
Blue shale .....	8	425
Lime .....	3	428
Blue shale .....	2	430
Red rock .....	4	434
Lime .....	4	438
Blue shale .....	5	443
Lime .....	2	445
Blue shale .....	2	447
Lime .....	18	465
Gray lime .....	18	483
Blue shale .....	12	495
Lime .....	45	540
Blue shale .....	6	546
Lime .....	59	605

LOG No. 234.

ROLAND ISAACS. DRILLED 1918

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay and black soil .....	15	15
Lime .....	141	156
Blue shale .....	456	612

## DEVONIAN SYSTEM.

Black shale .....	110	722
Fire clay .....	4	726
Black shale hard .....	4	730
Break (blue shale) .....	4	734
Top of cap .....		734
Cap hard .....	1½	735½
Pay good oil show might have paid with shot .....	4	739½
Pay fair oil show might have paid with shot .....	1	740½
Rusty lime .....	1	741½
Gray lime .....	1	742½
Rusty gray lime .....	1	743½
Light gray lime .....	3	746½
Dark gray lime .....	1	747½
Light gray lime .....	1	748½
Dark gray lime .....	4	752½
Dark gray lime—Watery .....	3	755½
Dark gray lime.....	4	759½
Dark brown lime—Oil production 20 bbls.	3½	763
Dark gray lime .....	1	764
Light gray lime .....	½	764½
Bottom .....	764½	764½

LOG No. 235.

## ADAM WALLING WELL.

Lucky Star Oil Company. White Oak Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	19	19
Shale .....	6	25
Lime .....	20	45
Blue slate .....	25	70
Lime .....	10	80
Blue slate .....	25	105
Lime shale .....	2	107
Blue slate .....	353	460
DEVONIAN SYSTEM.		
Black shale .....	103	563
"Fire clay" (White shale) .....	3	566
Irvine sand .....	35	601
Slate .....	10	611
Lime .....	10	621
Blue slate—Cased at 675.....	79	700
Lime .....	10	710
Blue slate .....	106	816

DRILLED WELLS—ESTILL COUNTY

265

Red slate and shells .....	19	835
Hard white lime .....	10	845
Lime with slate breaks .....	295	1140
Sandy lime .....	10	1150
Soft lime and shells .....	50	1200
Hard lime .....	150	1350
Soft lime and shells—Gas at 1885.....	550	1900
Hard lime and hard shells .....	574	2474
Sand—Water at 2533—Gas at 2520.....	80	2554
Lime .....	16	2570
Sandy lime—water at 2600.....	40	2610
Lime .....	80	2690
Sandy lime—water rose 2100 feet.....	35	2725
Lime .....	5	2730

LOG No. 236.

COMBINED SECTION FROM BOTTOM OF OLD GAS WELL ON  
WHITE OAK CREEK TO TOP OF RIDGE.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Massive sandstone to top of ridge....	196	944
Shales and shaly sandstone.....	50	748
Black slate.....	4	698
Coal.....	1	694
Gray shale.....	4	693
Coal.....	1	689
Shales.....	15	688
(Pottsville)		
MISSISSIPPIAN SYSTEM.		
Buff, earthy limestone.....	8	673
“Archimedes” limestone .....	2	665
Gray limestone .....	13	663
Calcareous shale .....	10	650
Oolitic limestone .....	10	640
Buff limestone .....	11	630
Oolitic limestone .....	22	619
Gray limestone .....	12	597
Earthy, buff limestone .....	5	585
Gray, cherty limestone .....	24	580
Massive limestone .....	22	556
Blue limestone and shale .....	38	534
Earthy, yellow limestone .....	6	496
Sandstone and shales (Waverly).....	490	490
Top of well .....		0

## DEVONIAN SYSTEM.

Black shale .....	125	125
Lime—Ragland sand .....	25	150

## SILURIAN SYSTEM.

Blue and gray shales .....	145	295
Gray lime .....	30	325
Gray shale .....	10	335
Gray lime .....	8	343
Red lime .....	10	353
Gray lime .....	17	370
Brown lime .....	40	410

## ORDOVICIAN SYSTEM.

Gray lime .....	839	1249
Greenish-white sandy shale (top of Tyrone) .....	10	1259
Hard dove-colored limestone .....	425	1684
Hard gray limestone .....	145	1829
White, fine grained, sandy lime (Calciferous) .....	15	1844
Gas in Calciferous at about 1940.		

## LOG No. 237.

BICKNELL WELL.  
Locust Branch of Red Lick.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Soil .....	8	8
Black shale .....	103	111
Corniferous lime .....	8	119
Shale .....	64	183
Lime .....	6	189
Shale .....	14	203
Bottom of well at .....		238

## LOG No. 238.

GENTRY WELL.  
Locust Branch of Red Lick.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Soil .....	9	9
Black shale .....	90	99
Blue shale .....	99	198
Bottom of well at—salt water .....		268
(Corniferous missing)		

LOG No. 239.

REAVES WELL.

Locust Branch of Red Lick.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Soil .....	8	8
Black shale .....	54	62
Corniferous lime .....	8	70
Blue shale .....	64	134
Lime .....	6	140
Blue shale .....	19	159
Bottom of well at .....		575

LOG No. 240.

DAN MILLER FARM—No. 5.

Middle Fork of Station Camp Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	22	22
Light shale .....	50	72
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	98	170
White clay } .....	6	176
"Cap rock" .....	1	177
"Oil sand"—Oil .....	2	180

LOG No. 241.

DAN MILLER FARM—No. 6.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	14	14
Light shale .....	16	30
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	100	130
White clay } .....	7	137
"Cap rock" .....	1	138
"Oil sand"—Oil .....	5	143

LOG No. 242.

DAN MILLER FARM—No. 7.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	25	25
Light shale .....	17	42
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	98	140
White clay } .....	8	148
Black shale } .....	2	150
"Cap rock" .....	1	151
"Oil sand"—Oil .....	3	154

## LOG No. 243.

## DAN MILLER FARM—No. 8.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	14	14
Light shale .....	13	27
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	100	127
White clay } .....	7	134
"Oil sand"—Oil .....	2	136

## LOG No. 244.

WM. COX FARM.  
Middle Fork of Station Camp Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	8	8
Blue shale .....	84	92
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	102	194
White clay } .....	8	202
Black shale } .....	4	206
"Oil sand" .....	19	225

## LOG No. 245.

CHARLES COX FARM—No. 6.  
Middle Fork of Station Camp Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	10	10
Light shale .....	9	19
Blue shale .....	112	131
Sand .....	11	142
Blue shale .....	27	169
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	100	269
White clay } .....	8	277
"Cap rock" .....	1	278
"Oil sand" .....	3	281

LOG No. 246.

CHARLES COX FARM—No. 7.

MISSISSIPPIAN SYSTEM.

Strata	Thickness	Depth
Soil .....	20	20
Light shale .....	6	26
Blue shale .....	10	36
Shell .....	2	38
Sand .....	3	41
Blue shale .....	20	161

DEVONIAN SYSTEM.

Black shale	} (Devonian)	103	164
White clay		9	173
"Cap rock"		1	174
"Oil sand"		11	185

LOG No. 247.

CHARLES COX FARM—No. 10.

MISSISSIPPIAN SYSTEM.

Strata	Thickness	Depth
Sand .....	25	25
Blue shale .....	65	90
Shell .....	3	93
Blue shale .....	38	131
Shell .....	2	133
Sand .....	10	143
Blue shale .....	30	173
Sand .....	8	181
Soft rock .....	18	199
Blue shale .....	45	244
Shell .....	6	250
Shale .....	20	270

DEVONIAN SYSTEM.

Black shale	} (Devonian)	101	371
White clay		7	378
"Cap rock"		1	379
"Oil sand"		3	382

LOG No. 248.

CHARLES COX FARM—No. 11.

MISSISSIPPIAN SYSTEM.

Strata	Thickness	Depth
Soil .....	10	10
Blue shale .....	70	80
Shell .....	5	85
Blue shale .....	30	115

DEVONIAN SYSTEM.

Black shale	{ (Devonian)	100	215
White clay		8	223
"Cap rock"		2	225
"Oil sand"—Salt water			

LOG No. 249.

CHARLES COX FARM—No. 12.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Sand	14	14
Blue shale	28	42
Shell	7	49
Blue shale	40	89

DEVONIAN SYSTEM.

Black shale	{ (Devonian)	102	191
White clay		8	199
"Cap rock"		1	200
"Oil sand"		61	261

LOG No. 250.

CHARLES COX FARM—No. 13.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Shale	57	57
Shell	6	63
Blue shale	53	116
Sand	5	121
Blue shale	95	216
Sand	10	226
Blue shale	63	289

DEVONIAN SYSTEM.

Black shale	{ (Devonian)	105	394
White clay		9	403
"Cap rock"		5	408
"Oil sand"—oil.			

LOG No. 251.

F. J. WAGES FARM—No. 1.  
Station Camp Creek.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Sand and mud .....	26	26
Black slate	} (Devonian) .....	59
"Fire clay" (shale) .....		5
Lime—Oil and gas .....	3	93

LOG No. 252.

F. J. WAGES—No. 2.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Sand and mud .....	27	27
Black slate .....	58	86
"Fire clay" (shale) } (Devonian) .....	5	91
Lime—Oil and gas .....	3	94

LOG No. 253.

F. J. WAGES—No. 3.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Sand and mud .....	21	21
Black slate .....	62	83
"Fire clay" (shale) } (Devonian) .....	5	88
Lime—Salt water .....	23	111

LOG No. 254.

F. J. WAGES—No. 4.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Sand and mud .....	23	23
Black slate .....	61	84
"Fire clay" (shale) } (Devonian) .....	5	89
Lime—Gas show and water .....	3	92

LOG No. 255.

F. J. WAGES—No. 6.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Sand and mud .....	22	22
Black slate .....	83	105
"Fire clay" (shale) } (Devonian) .....	4	109
Lime—Oil and gas show. Water .....	55	164

LOG No. 256.

CALLAHAN FARM.

Ross Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Sand .....	210	210
Lime .....	168	378
Sand and lime (?) .....	200	578
Soft lime (?) .....	225	803
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	125	928
"Fire clay" } (White shale) .....	12	940
"Oil sand" .....	10	950

LOG No. 257.

HARRIS FARM—No. 1.  
Ross Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	10	10
Lime .....	165	175
Sandy shale .....	205	380
Light shale .....	207	587
DEVONIAN SYSTEM.		
Black shale { (Devonian) .....	116	703
White shale { .....	8	711
"Cap rock" .....	1	712
"Oil sand"—Oil .....	6	718

LOG No. 258.

HARRIS FARM—No. 2.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	20	20
Lime .....	175	195
Sandy shale .....	210	405
Light shale .....	236	641
DEVONIAN SYSTEM.		
Black shale { (Devonian) .....	125	766
White shale { .....	4	770
"Cap rock" .....	1	771
"Oil sand"—Oil .....	17	788

LOG No. 259.

A. J. RAWLINS FARM—No. 15.  
Sweet Lick Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Red shale .....	10	10
Lime .....	50	60
Blue shale .....	376	436
Sand .....	7	443
DEVONIAN SYSTEM.		
Black shale { (Devonian) .....	114	557
White clay { .....	7	564
"Oil sand"—Oil .....	24	588

LOG No. 260.

A. J. RAWLINS FARM—No. 16.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	7	7
Red shale .....	18	25
Light shale .....	145	170
Red rock .....	8	178
Blue shale .....	13	191
<b>DEVONIAN SYSTEM.</b>		
Black shale } (Devonian) .....	105	296
White clay } .....	8	302
"Oil sand"—Oil .....	16	318

LOG No. 261.

A. J. RAWLINS FARM —No. 17.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	9	9
Shale .....	54	63
<b>DEVONIAN SYSTEM.</b>		
Black shale } (Devonian) .....	102	165
White clay } .....	7	172
"Cap rock" .....	1	173
"Oil sand"—Oil .....	21	194

LOG No. 262.

A. J. RAWLINS FARM—No. 18.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	18	18
Clay .....	57	75
Blue shale .....	265	340
Shells .....	30	370
Blue shale .....	5	375
Gray shale .....	45	420
Red rock .....	10	430
Gray shale .....	9	439
<b>DEVONIAN SYSTEM.</b>		
Black shale } (Devonian) .....	104	543
White clay } .....	7	550
Oil sand—Oil .....	23	573

## LOG No. 263.

## A. J. RAWLINS FARM—No. 19.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	10	10
Blue shale .....	44	54
Red rock .....	6	62
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	114	176
White clay } .....	3	179
"Oil sand"—Salt water .....	38	217

## LOG No. 264.

## A. J. RAWLINS FARM—No. 20.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	16	16
Blue shale .....	54	70
Shaly sand .....	40	110
Blue shale .....	215	325
Gray shale .....	4	329
Blue shale .....	36	365
Shells .....	15	380
Blue shale .....	25	405
Red rock .....	6	411
Gray shale .....	12	423
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	106	529
White clay } .....	6	535
"Oil sand"—Oil .....	34	569

## FLOYD COUNTY.

## LOG No. 265.

## A. S. CRISP WELL.

## Bucks Branch.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	15	15
Sandstone—gray .....	12	27
Slate—light .....	25	52
Coal .....	3	55
Sandstone—gray .....	8	63
Slate—light .....	18	81
Sandstone—gray .....	14	95
Slate—light .....	20	115
Sandstone—gray .....	12	127
Slate .....	20	147

# DRILLED WELLS—FLOYD COUNTY

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Coal .....	4	151
Sandstone—gray .....	24	175
Slate—black. Cased at 177 ft.....	75	250
Sandstone—gray .....	58	308
Slate—black .....	42	350
Sandstone—white .....	18	368
Slate—black .....	38	406
Sandstone—gray .....	22	428
Slate—black .....	30	458
Sandstone—gray .....	12	470
Slate—black .....	37	507
Sandstone—gray. Salt water at 636.....	129	636
Slate—black .....	6	642
Sandstone—white .....	30	672
Slate—light. Cased at 680 ft.....	12	684
Sandstone—white .....	41	725
Slate—black .....	28	753
Sandstone—white .....	47	800
Slate—black. Cased at 804 ft.....	5	805
Sandstone—gray .....	20	825
Slate—black .....	16	841
Slate—yellow .....	26	867
Sandstone—gray .....	38	905
Shale—red—caving .....	18	923
Slate—blue .....	7	930
Shale—red .....	40	970
Slate—black. Cased at 1003 ft.....	40	1010
Sandstone—gray .....	12	1022
Slate—light .....	19	1041
Sandstone—gray and white .....	20	1061

Well is entirely in Pottsville.

LOG No. 266.

## MOUTH OF MIDDLE CREEK.

Strata	Thickness	Depth
Soil Conductor .....		16

## PENNSYLVANIAN SYSTEM.

Shale .....	94	110
Coal .....	1	111
"Sandy" shale .....	139	250
Coal .....	6	256
Sand .....	86	342
Shale .....	80	422
"Beaver" sand .....	128	550
Black slate .....	6	556
"Horton" sand, salt water at 560 ft.....	80	636
Sandy shale .....	191	827

"Maxon" sand .....	80	907
"Little" lime .....	24	931
"Pencil Cave" .....	2	933
"Big Lime," gas 6 5-8 casing 956 ft. ....	113	1046
"Big Injun," small amount gas, top.....	159	1205
Lime shells .....	185	1390
"Weir" sand, gas and green oil from 1394	38	1428

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	22	22
Slate .....	18	40
Coal .....	4	44
Black slate .....	51	95
Coal .....	4	99
White sand .....	28	127
Black slate .....	28	155
Gray sand .....	15	170
Light slate .....	17	187
Coal .....	3	190
Light slate .....	20	210
Sand .....	3	213
Light slate .....	85	298
Sand .....	22	320
Light slate .....	5	325
Sand .....	22	347
Slate .....	183	530
Dark sand .....	5	535
Black slate .....	45	580
White sand (Beaver)—Gas .....	124	704
Light slate .....	10	714
White sand (Horton) .....	129	843
Light slate .....	5	848
White sand (Pike) .....	67	915
Coal .....	3	918
Sand .....	35	953
Dark slate .....	5	958
Dark sand .....	19	977
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	87	1064
Sand (Maxon) Gas .....	49	1113
Black slate .....	3	1116

LOG No. 268.

WELL AT MOUTH OF SALT LICK OF RIGHT BEAVER.

Strata	Thickness	Depth
Soil .....	34	34
PENNSYLVANIAN SYSTEM.		
Black slate .....	10	44
White sand .....	50	94
Black slate .....	30	124
Gray sand .....	100	224
Light slate .....	76	300
White sand .....	20	320
Light slate .....	130	450
White sand (Beaver)—Oil, gas and salt water .....	212	662
Black slate .....	30	692
White sand (Horton)—Salt water .....	108	800
Coal .....	1	801
Sand .....	43	844
Black slate .....	59	903
Sand (Pike)—Gas and oil .....	93	996

MISSISSIPPIAN SYSTEM.

Black slate .....	60	1056
Sand—Salt water .....	50	1106
Black slate .....	11	1117
Dark lime .....	13	1130
Slate and lime shells .....	35	1165
Lime and slate .....	8	1173
Slate and lime shells.....	19	1192
Lime—"Big lime"—Oil and gas at 1269....	138	1330
Red shale .....	95	1425
Slate and sand shells .....	181	1606
Black slate .....	44	1650
Light blue slate and sand shells .....	130	1780

DEVONIAN SYSTEM.

Black slate .....	200	1980
Slaty lime—Gas .....	2	1982
Black slate—Gas .....	225	2207
Soft light slate .....	33	2240

LOG No. 269.

AKER BRANCH LEFT BEAVER CREEK.

Strata	Thickness	Depth
Drift 10 in. casing.....		44

PENNSYLVANIAN SYSTEM

Slate .....	36	80	
Sandstone .....	20	100	
Slate .....	120	220	
Sandstone .....	35	255	
Slate .....	100	355	Cased 8¼ at 260 ft.
Sandstone .....	20	375	
Slate .....	125	500	
Sandstone ("Salt Sand")....	190	690	{ Shows oil and gas 572. Shows gas 537—50,000 cu. ft. Saltwater filled to 660. Cased 6⅝—728.
Slate .....	59	749	
Sandstone .....	59	808	
Slate .....	10	818	
Sandstone .....	5	823	
Slate .....	12	835	
Sandstone .....	10	845	

MISSISSIPPIAN SYSTEM

Red rock .....	18	863	
Slate .....	38	901	
Sandstone "Maxon" thin....	51	952	
Limestone .....	6	958	
Slate .....	8	966	
Red rock .....	99	1065	
Slate, sandstone and shell..	15	1088	
Slate .....	30	1110	
Limestone .....	10	1120	
Slate .....	10	1130	
Dark lime .....	77	1207	
Sandstone, "Bradley" .....	30	1237	1212—gas 25,000.
Part limestone .....	33	1270	
White lime, "Big Lime"....	140	1410	Gas at 1396.
White & sandy "Big Lime"	5	1415	
White limestone "Big Lime" .....	19	1434	
Red shale .....	50	1484	
Slate .....	47	1531	
Slate and sand .....	234	1765	
Brown shale .....	19	1784	
Sandstone "Wier" .....	45	1829	Show of "Amber" oil at 1784 in top.
Bran slate .....	150	1979	Gas 1979-1994.
Berea .....	21	2000	Total depth.
Slate .....	2	2002	

LOG No. 270.

OTTER CREEK OF LEFT BEAVER

Strata	Thickness	Depth
Quicksand and gravel .....	50	50
PENNSYLVANIAN SYSTEM		
Hard white sand .....	80	130
Light shale .....	5	135
Sand, hard .....	15	150
Shale, dark .....	20	170
Sand, white and hard .....	80	250
Shale, white and firm .....	70	320
Sand, white and hard .....	10	330
Shale, slow drilling .....	55	385
"Little Dunkard," sand, hard.....	45	430
Sand, white and hard .....	55	485
Shale and shells .....	75	560
"Big Dunkard" sand, hard .....	50	610
Shale and shells .....	125	735
Gas sand, black and hard .....	65	800
Shale and shells .....	55	855
"Salt" sand, dark and hard .....	65	920
Shale and shells .....	55	975
Sand, hard .....	160	1135
Shale and shells .....	70	1205
"Salt" sand, very hard .....	445	1650
Shale, black and soft .....	10	1660
Sand, gritty and hard .....	15	1675
Shale, soft .....	31	1706
Sand, very hard .....	40	1746
Shale and shells .....	59	1805
Sand, hard and white .....	10	1815
MISSISSIPPIAN SYSTEM		
Slate, very soft .....	7	1822
"Maxon" sand, very hard .....	63	1885
Shale, very soft .....	8	1893
"Maxon" sand, very hard .....	47	1940
Slate .....	30	1970
Lime (cored 3 ft.).....	14	1984
"Pencil Cave" shale, very soft .....	6	1990
Shale .....	69	2059
"Big Lime" (oil 2222-28).....	232	2291
Sand, hard (gas at 2296) .....	7	2298
Shale .....	42	2340
"Big Injun" Red Sand .....	30	2370
"Big Injun," dark, hard sand (block oil 2376) .....	10	2380
Lime and shells .....	82	2462

Sand, soft .....	29	2491
Shale .....	142	2633
Brown shale .....	73	2706
"Berea" shell and sand, very hard.....	4	2710
Shale .....	29	2739

## DEVONIAN SYSTEM

Black shale and shells (gas production 2109) .....	70	2809
Black shale .....	187	2996
Sand .....	5	3001
Shale .....	99	3100
10 in. casing, 371.		
8¼ in. case 872.		
6⅝ in. case, 1983.		
Hole full of water at 70.		
¼ bailer of water at 875 per hour.		
4 bailer of water at 1848 per hour.		
4 bailer of water at 1982 per hour.		

LOG No. 271.

## W. S. HARKINS FARM.

## Trimble Branch.

Strata	Thickness	Depth
Alluvial Quicksand .....	40	40

## PENNSYLVANIAN SYSTEM

Conglomerate shale, sand and lime.....	408	448
Top salt sand (gas 450).....	5	453
Shale .....	35	498
Sand (water 670) .....	197	685
Lime .....	35	720
Sand, white, settling .....	30	750
Slate .....	50	800
Sand (oil and gas 800 to 812) .....	40	840
Shale, blue .....	79	919

## MISSISSIPPIAN SYSTEM

"Maxon" sand .....	65	984
"Little Lime" .....	20	1004
"Pencil Cave" .....	3	1007
"Big Lime" .....	160	1167
Shells, sand and shale .....	257	1424
Brown shale .....	40	1464
"Berea" sand, (first) oil 1467-1480.....	40	1504
Shale, black .....	3	1507
"Berea" sand .....	40	1547

DEVONIAN SYSTEM

Shale, black .....	148	1695
Shale, brown .....	20	1715
Sand, Gray .....	5	1720
Shale, black .....		1750
Bottom of hole .....		1750

Casing put in 12½, 40 feet.

Casing put in 8¼, 115 feet.

Casing put in 6⅝, 1017 feet.

Shot well from 1467 to 1482 feet with 60 qts. nitro-glycerine.

Shot cleaned well. Well filled up about 90 ft. within forty minutes after shot.

Contractor—King Drilling Co., Huntington, W. Va.

LOG No. 272.

ISAAC BRADLEY FARM.

1¾ Miles up Right Beaver Creek.

Strata	Feet	Feet
Drift, 10" Casing .....	0 to	22
PENNSYLVANIAN SYSTEM.		
Sandstone, white .....	25 "	47
Slate, black .....	35 "	82
Coal .....	5 "	87
Sandstone, white .....	60 "	147
Slate, black .....	53 "	200
Coal .....	6 "	206
Slate, black .....	44 "	250
Sandstone, dark gray .....	36 "	286
Slate, cased 8¼" at 278'.....	3 "	289
Sandstone, gray .....	27 "	316
Slate and shells .....	125 "	441
Sandstone, white. Salt water 510'.....	180 "	621
Slate .....	5 "	626
Sandstone. Gas show at 630'.....	14 "	640
Slate, Shelly from 645 to 648'.....	29 "	669
Sandstone, white .....	46 "	715
Slate, Shelly .....	15 "	730
Sandstone, white .....	55 "	785
Slate .....	5 "	790
Sandstone, white; oil and gas show 792'.....	20 "	810
Sandstone, very dark .....	10 "	820
Slate, black .....	30 "	850
Sandstone, gray; oil show 872'.....	27 "	877
Sandstone, mainly white; gas show 910' cased 1st time at 943'; salt water flooded at 943'; casing pulled and reamed from 943 to 947 (case 6⅝" top Maxon sand which should be 1097 in this well) .....	138 "	1015

Slate, black, cased 6 $\frac{5}{8}$ " at 1018.....	26	to	1041
Sandstone, gray .....	14	"	1055
Slate, dark .....	42	"	1097

MISSISSIPPIAN SYSTEM.

Maxon Sand, Sandstone, white, $\frac{3}{4}$ million feet gas at 1131'; oil show at 1200'; salt water 4 Bailers at 1220' .....	143	"	1240
Slate, black .....	12	"	1252
Sandstone, dark gray .....	10	"	1262
Slate, black .....	8	"	1270
Limestone .....	28	"	1298
Slate, black .....	15	"	1313
Sandstone, "Keener" first 6 ft., brown, with oil production; balance light gray.....	30	"	1343
Slate .....	6	"	1349
Slate, limy .....	6	"	1355
Big Lime, Limestone .....	38	"	1393
Big Lime, Sandstone .....	4	"	1397
Big Lime, Limestone .....	30	"	1427
Big Lime, Limestone, Sandy, gas at 1429' small amount .....	2	"	1429
Big Lime, Limestone .....	75	"	1504
Red Shale .....	3	"	1507
Limestone .....	4	"	1511
Sandstone, Limy .....	4	"	1515
Slate .....	4	"	1519
Red shale .....	10	"	1529
Slate, sandy .....	2	"	1531
Red Shale .....	20	"	1551
Slate, sandy .....	2	"	1553
Red shale, slaty .....	7	"	1560
Slate, sandy .....	3	"	1563
Red shale .....	22	"	1585
Slate, black .....	81	"	1666
Stopped in black slate at 1666 ft.			
Berea should be at 2080.			

LOG No. 273.

JACK ALLEN FARM.  
Mouth of Salt Lick.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	38	44
Coal .....	2	40
Gray sand .....	50	90
Slate .....	75	165
Gray sand .....	50	215

# DRILLED WELLS—FLOYD COUNTY

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Slate .....	15	230
Gray sand .....	18	248
Black slate .....	32	280
Gray sand .....	30	310
Dark slate .....	120	430
Sand (Beaver) Gas .....	60	490
Black slate (Beaver) .....	8	498
Sand (Beaver) .....	170	668
Coal .....	1	669
Slate .....	34	703
White sand (Horton) .....	98	801
Coal .....	1	802
Gray sand .....	4	806
Black slate .....	15	821
Gray sand .....	29	850
Dark slate .....	69	919
Sand (Pike) .....	41	960
Slate (Pike) .....	19	979
Sand (Pike) .....	19	998
Slate .....	2	1000
(Well all in Pottsville).		

## JACK ALLEN FARM. Right Beaver near Salt Lick.

LOG No. 274.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	29	29
Sand .....	26	55
Slate .....	35	90
Sand .....	12	102
Slate .....	55	157
Gray sand .....	44	201
Light slate .....	15	216
Blue sand .....	5	221
Black slate .....	22	243
Dark gray sand .....	12	255
Light slate .....	35	290
Black sand .....	3	293
Light slate .....	47	340
Gray sand .....	18	358
Black slate .....	10	368
Black sand .....	19	387
Light slate .....	27	414
Sand (Beaver) Gas and salt water.....	238	652

Coal .....	2	654
White sand .....	8	662
Dark slate .....	22	684
White sand (Horton) .....	114	798
Black slate .....	5	803
Gray and black sand .....	44	847
Black slate .....	53	900
Light sand .....	11	911
Light slate .....	3	914
Dark gray sand .....	2	916
Black slate .....	8	924
Sand (Pike) Oil .....	28	952
(Well is all in Pottsville).		

LOG No. 275.

## E. S. FRAZIER GAS WELL No. 1.

Strata	Thickness	Depth
Drift .....	0	37

## PENNSYLVANIAN SYSTEM.

Sandstone .....	20	57
Slate .....	154	211
Sandstone, gray .....	20	231
Coal .....	4	235
Slate, black (Cased 8¼" at 249') .....	125	360
"Beaver" sand, gray (little gas at 560)		
Salt water, half enough for drill at		
640' .....	320	680
Sandstone, black .....	21	701
Sandstone, gray (little gas and salt water		
enough to drill at 755') .....	101	802
Slate, black .....	36	838
Sandstone, light colored (little gas at 844'		
salt water flooded at 900', gas to flow		
Salt water at 926') .....	193	1031
Slate, black (cased 6⅝" at 1038') .....	21	1052

## MISSISSIPPIAN SYSTEM.

Red shale .....	54	1106
"Maxon" sand, white (little gas at 1165'		
S. W. for drill at 1204', little gas 1255'		
little S. W. 1260') .....	161	1267
"Little" lime, black .....	21	1288
"Big" Lime, white (gas production 1360'		
to 1366', Oil show 1431') .....	149	1437
Limestone, blue, hard .....	47	1484

"Sunberry" red shale, sandy (stopped drilling in this, January 26, 1907).....	82	1566
Slate and shells .....	279	1845
Brown shale .....	84	1938
"Wier" sand .....	18	1956
Light slate (break) .....	6	1962
"Berea" sand, lime shell.....	18	1980
Light slate .....	180	2160

DEVONIAN SYSTEM.

Shale and dark slate .....	365	2525
Light slate .....	165	2690
Shale, black .....	34	2724
"Corniferous"—"Ragland Sand"—Lime. ..	30	2754

Note—First drilling finished January 26, 1907 at 1566 feet. Well tubed, packed and shut in, on 2" tubing, March 12, 1907. Bottom of packer set at 1328 ft. 2". Cage on bottom of packer, and 328 feet of Anchor under packer. All casing left in well. Pressure gauge of well taken on March 13, 1907.

30 seconds .....	55
1 minute .....	85
1½ minute .....	120
2 minutes .....	150
2½ minutes .....	185
3 minutes .....	210
3½ minutes .....	235
4 minutes .....	260
4½ minutes .....	280
12½ minutes .....	435

Second, drilling started fall of 1915 and completed to total depth of 2754 feet.

Author's Geological Note.—This well located in Syncline.

LOG No. 276.

JACK ALLEN FARM.  
Salt Lick of Right Beaver.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	43	43
Black slate .....	48	91
Gray sand .....	27	118
Light slate .....	53	171
Light sand .....	47	218
Dark slate .....	5	223
Dark sand .....	35	258
Dark slate .....	60	318

Gray sand .....	23	341
Light slate .....	40	381
Light sand .....	15	396
Dark slate .....	42	438
White sand (Beaver) pebbly. Gas and salt water .....	232	670
Dark slate .....	24	694
White sand (Horton) .....	145	839
Black sand .....	20	859
Shelly slate .....	20	879
Black slate .....	50	929
White sand (Pike) gas .....	77	1006
Slate .....	8	1014
(All Pottsville).		

LOG No. 277.

JACK ALLEN FARM.  
Motts branch of Salt Lick.

Strata	Thickness	Depth
Soil .....	22	22
PENNSYLVANIAN SYSTEM.		
Gray sand .....	38	60
Slate .....	15	75
Gray sand .....	39	114
Slate .....	71	185
Gray sand .....	51	236
Slate .....	15	251
Gray sand .....	20	271
Slate .....	69	340
Gray sand .....	15	355
Slate .....	105	460
Sand (Beaver) Gas .....	269	729
Coal .....	1	730
Dark slate .....	14	744
White sand (Horton) .....	96	840
Coal .....	1	841
Gray sand (Pike) .....	29	870
Dark slate (Pike) .....	6	876
White sand (Pike) .....	10	886
MISSISSIPPIAN SYSTEM.		
Dark slate .....	97	983
Sand (Maxon) Gas and salt water.....	133	1116
Lime .....	9	1125

LOG No. 278.                      WYLIE SLONE FARM.  
                                    Buckeye of Left Middle Creek.

Strata	Feet		Feet
Alluvial (quicksand) .....	25		
PENNSYLVANIAN SYSTEM.			
12½ in. casing .....	25		
Fire clay and blue shale .....	30	to	55
Coal h.....	5	to	60
Conglomerate (Shale, sand and shells)....	410	to	470
Beaver sand—White and hard.....	180		650
Water at .....	590		
Slate, black .....	15		665
Sand, white .....	60		725
MISSISSIPPIAN SYSTEM.			
Shale .....	104		829
Maxon sand .....	85		914
Slate, blue .....	6		920
Sand, white (show oil 930).....	32		952
Lime, black, sandy .....	24		976
Big lime, white and hard.....	165		1141
Gas .....	1041		
Gas (94560 cu. ft.).....	1096		
A little oil with gas.			
Bastard lime, dark, gritty .....	99		1240
Big Indian sand, red .....	25		1265
Shale and shells, gray and brown.....	185		1450
Gas sand, limy, hard .....	70		1520
Shale, brown, soft .....	145		1685
Finished in shale at .....	1685		
Bridge set for plug at .....	100	in line.	
Plug, broken stone and sand.....	30		
Male and female wood plug.....	7		
Broken stone and sand.....	30		
<hr/>			
Gas at .....	1041		
Water at .....	590		
12½ in. casing .....	25		
8¼ in. casing .....	185		
6⅝ in. casing .....	1006		
Hole plugged, casing pulled and abandoned.			
Length of plug .....	67	feet.	
Casing put in, 12½ in. ....	25	feet.	
Casing put in, 8¼ in. ....	185	feet pulled	185
Casing put in, 6⅝ in. ....	1006	feet pulled	
Well plugged and abandoned.			
Authority, King Drilling Company, Contractors.			

LOG No. 279.

JOS. GEARHART FARM.

Salt Lick of Right Beaver.

Strata	Thickness	Depth
Soil .....	27	27
<b>PENNSYLVANIAN SYSTEM.</b>		
Gray sand .....	37	64
Coal .....	1	65
Black slate .....	15	80
White sand .....	70	150
Black slate .....	50	200
Gray sand .....	50	250
Dark lime (?) .....	10	260
Gray sand—Gas .....	50	310
Slate—Gas .....	163	473
Gray sand .....	47	520
Light slate .....	38	558
White sand (Beaver) .....	156	714
Sandy lime (?) .....	5	719
Gray sand (Horton) .....	126	845
Black shale .....	1	846
Dark lime (?) .....	5	851
Sand (Pike) .....	54	905
Shelly slate (Pike) .....	5	910
Sand (Pike) Gas .....	18	928
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	52	980
Sand (Maxon) Gas, oil and salt water.....	178	1158
Black lime .....	5	1163
Blue slate .....	2	1165
Red shale .....	5	1170
Dark lime .....	2	1172

LOG No. 280.

R. ALLEN FARM.

Right Beaver Creek.

Strata	Thickness	Depth
Drift .....	34	34
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	11	45
Gray sand .....	15	60
Slate .....	55	115
Gray sand .....	34	149
Slate .....	9	158
Gray sand .....	32	190
Black slate .....	24	214
Gray sand .....	16	230
Black slate .....	4	234

**DRILLED WELLS—FLOYD COUNTY**

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Gray sand .....	11	245
Black slate .....	35	280
Coal .....	2	282
Black slate .....	38	320
Gray sand .....	68	388
Black slate .....	27	415
Gray sand .....	20	435
Black slate .....	41	476
Gray sand .....	54	530
Black slate .....	38	568
Coal .....	2	570
Black slate .....	60	630
Sand (Beaver)—Salt water .....	198	828
Coal .....	1	829
Dark slate .....	40	869
Sand (Horton) .....	115	984
Dark slate .....	24	1008
Dark sand .....	8	1016
Dark slate .....	40	1056
Sand (Pike) .....	98	1154
<b>MISSISSIPPIAN SYSTEM.</b>		
Dark slate .....	32	1186
Sand (Maxon)—Gas, oil and salt water....	50	1236

**LOG No. 281.**

**A. B. BRODE & COMPANY FARM.  
Right Beaver Creek.**

Strata	Thickness	Depth
Drift 10" casing .....	27½	27½
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate and shells .....		360
Sand .....	40	400
Gas .....	400	
Hole full of water at .....		800
Slate .....	40	840
Sandy shale .....	40	880
Slate .....	10	890
Sandy shale .....	25	215
Slate .....	5	920
Sand, white .....	30	950
Slate .....	10	960
Black sandy shale .....	55	1015
Dark slate .....	10	1025
Black sand .....	5	1030
White sand .....	5	1035
Slate .....	10	1045

MISSISSIPPIAN SYSTEM.

Black sandy shale .....	5	1050
White sand, "Maxon" .....		1050
Oil showed .....		1060
Gas at .....		1064
Break .....		1071½
6⅝" Casing .....		1061½
8¼" Casing .....		133

LOG NO. 282.

WELL AT GARRETT.  
(Partial Record.)

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift ..	27	27
Slate and shells .....	333	360
Sand and gas .....		400
Missing .....		840
Sandy shale .....	40	880
Slate ..	10	890
Sandy shale .....	25	915
Slate .....	5	920
White sand .....	30	950
Slate .....	10	960
Black sandy shale .....	55	1015
Dark slate .....	10	1025
Black sand .....	5	1030
White sand .....	5	1035
MISSISSIPPIAN SYSTEM.		
Slate .....	10	1045
Black sandy lime .....	5	1050
Sand—oil show at 1060 .....	21	1071

LOG NO. 283.

GEORGE ALLEN FARM.  
Right Beaver.

Strata	Thickness	Depth
Soil ..	23	23
PENNSYLVANIAN SYSTEM.		
Slate .....	17	40
Coal .....	2	42
Gray sand .....	38	80
Slate .....	50	130
Gray sand .....	22	152
Slate .....	107	259
Gray sand .....	61	320

# DRILLED WELLS—FLOYD COUNTY

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Slate .....	80	400
Sand .....	52	452
Slate .....	90	542
White sand (Beaver) .....	132	674
Slate .....	7	681
Sand (Horton)—Gas and salt water.....	236	917
Black slate .....	75	992
Sand .....	9	1001
Black slate .....	7	1008
White sand (Pike)—Oil .....	70	1078
Slate .....	$\frac{1}{2}$	
Sand .....	14 $\frac{1}{2}$	1093
MISSISSIPPIAN SYSTEM.		
Slate .....	47	1140
Sand (Maxon)		

LOG No. 284.

STEELE CREEK.

Right Beaver Creek.

Strata	Thickness	Depth
Drift (10" casing) .....	0	15
PENNSYLVANIAN SYSTEM		
Limestone .....	25	40
Shells and slate .....	35	75
Sandstone .....	25	100
Black slate (8" casing) .....	50	150
White sand .....	58	208
Black slate .....	12	220
Limestone .....	61	280
Slate and shell .....	40	320
Limestone .....	30	350
Brown shale .....	15	365
Gray slate .....	37	402
Black slate .....	8	410
Limestone .....	60	470
White sand .....	5	475
Limy sand .....	20	500
Sandstone .....	10	510
Limestone .....	72	582
Sandstone .....	116	698
Slate .....	5	703
Black lime .....	15	718
Sandy lime .....	5	723
Sandstone (salt water 735) .....	87	810
Dark sand .....	10	820
Black slate .....	15	825
Gray sand .....	18	843

## MISSISSIPPIAN SYSTEM

Black slate .....	21	864
White sand "Maxon" gas at 892.....	26	890
White sand (2,00000 cu. ft.) .....		951
Not shot.		
860 3" tubing on packer in 6" hole.		
Drilled for A. B. Brode & Son.		
S. L. Anderson, Driller.		

LOG No. 285.

## GEORGE ALLEN FARM.

Right Beaver.

Strata	Thickness	Depth
Drift .....	18	18
PENNSYLVANIAN SYSTEM.		
Gray sand .....	42	60
Coal .....	2	62
Gray sand .....	80	142
Black slate .....	81	223
Coal .....	3	225
Gray sand .....	32	257
Black slate .....	81	338
Sandy slate .....	69	407
Gray sand .....	30	437
Black slate .....	14	451
Gray sand .....	36	487
Coal .....	10	497
Gray sand .....	6	503
Dark slate .....	39	542
Gray sand .....	50	592
Dark slate .....	41	633
Gray sand .....	14	647
Slate .....	170	817
Sand (Beaver and Horton)—Gas and salt water .....	367	1184
Slate .....	6	1190
Gray sand .....	12	1202
Dark slate .....	60	1262
Light sand (Pike)—Gas and oil.....	39	1301
Dark slate (Pike) .....	5	1306
White sand (Pike)—Oil show.....	68	1374
MISSISSIPPIAN SYSTEM.		
Black slate .....	40	1414
White sand (Maxon)—Gas.....	28	1442

LOG No. 286.

GEORGE ALLEN FARM.

Right Beaver.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	46	46
Black slate .....	14	60
Gray sand .....	18	78
Slate and shells .....	90	168
Coal .....	2	170
Gray sand—Gas .....	97	267
Slate and shells .....	126	393
Sand (Beaver and Horton)—Gas and salt water .....	412	805
Coal .....	1	806
Slaty lime .....	4	810
Dark sand .....	17	827
Black slate—Gas .....	47	874
Sand (Pike)—Gas, oil and salt water.....	120	994
Black slate .....	6	1000
(All Pottsville).		

LOG No. 287.

RIGHT BEAVER CREEK.

Strata	Thickness	Depth
Drift .....	0	45 8¼ casing.
<b>PENNSYLVANIAN SYSTEM</b>		
Slate .....	85	130
Sandstone, gray .....	31	161 Gas 140 exhausted.
Slate .....	50	211
Sandstone, gray .....	12	223
Slate .....	53	276
Sandstone, gray .....	19	295 Casing 6¼-280.
Slate .....	74	369
Sandstone, white .....	166	535 (Salt Sand.)
Slate .....	8	543
Sandstone, white .....	205	748 Saltwater flooded 655.
Coal .....	2	750
Sandstone, gray .....	18	768
Slate, dark .....	28	796 Cased 5 to 770.
Slate, yellow, caving .....	5	801
Sandstone (gas 810-827) ....	56	857
Slate, black, caving .....	13	870
Sandstone, white .....	15	885
Total .....		885

LOG NO. 288.

## GEORGE ALLEN FARM.

Right Beaver.

Strata	Thickness	Depth
Drift .....	30	30
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	12	42
Coal .....	4	46
Slate .....	18	64
Gray sand .....	16	80
Slate .....	23	103
Gray sand .....	25	128
Dark slate .....	25	153
Light sand .....	22	175
Dark slate .....	6	181
Coal .....	3	184
Dark slate .....	73	257
Light sand .....	36	293
Slate .....	203	496
Sand (Beaver) .....	246	742
Light slate .....	6	748
White sand (Horton).....	165	913
Coal .....	1	914
Dark slate .....	5	919
Gray sand .....	8	927
Dark slate .....	58	985
Sand (Pike)—Gas and oil .....	29	1014
Dark slate .....	4	1018
Gray sand .....	13	1031
<b>MISSISSIPPIAN SYSTEM.</b>		
Dark slate .....	4	1035
Gray sand .....	10	1045
Slate and red rock .....	8	1053
Sand (Maxon) Gas and salt water.....	31	1084
Black slate .....	45	1129
Sand .....	50	1179

LOG No. 289.

## NEWT. ALLEN FARM.

Right Beaver above Wilson Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	45	45
Slate .....	35	80
Gray sand—Gas .....	81	161
Slate .....	50	211
Gray sand .....	12	223

# DRILLED WELLS—FLOYD COUNTY

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Slate .....	53	276
Gray sand .....	19	295
Slate .....	74	369
White sand (Beaver) .....	166	535
Slate .....	8	543
White sand (Horton)—Salt water .....	205	748
Coal .....	2	750
Gray sand .....	18	768
Dark slate .....	28	796
Yellow slate .....	5	801
Sand (Pike)—Gas .....	56	857
Black slate .....	13	870
White sand .....	15	885
(All Pottsville).		

LOG No. 290.

## RIGHT BEAVER CREEK.

Strata	Thickness	Depth
Drift, 10 ft. casing .....		42
PENNSYLVANIAN SYSTEM.		
Sand .....	20	62
Slate .....	98	160
Sand .....	40	200
Slate and shells (292 feet).....	200	400
Sand (8 in. casing) .....	230	630
"Salt" sand .....	75	715
Break .....	65	780
Slate .....	54	834
Sand and slate .....	14	848
Sandy shale .....	12	860
Broken up .....	55	915
White sand, oil at 940.....	29	944
Slate (955 ft. 6 5-8), oil at 978.....	56	990
Dark shale (casing) .....	10	1000
Broken up .....	50	1050
MISSISSIPPIAN SYSTEM.		
Dark shale (water) .....	6	1056
Slate .....	20	1076
Sand "Maxon," hole full 1146 ft.....	84	1160
Break .....	1	1161
Dark sandy lime .....	21	1182
Slate .....	3	1185
White sandy lime .....	20	1205
Break .....	1	1206

Sand .....	25	1231
Big lime (dark) .....	26	1257
Big lime (light), oil at 1271.....	101	1358
Red limestone, oil at 1293.....	1	1359
Big lime, oil at 1311 .....	45	1404
Red rock .....	13	1417
Big Injun, oil at 1482 .....	83	1500
Big Injun—gas .....	6	1506
Slate and shell .....	54	1560

Shot with 65 lb. of 65 per cent. gelatin.

1237 feet 4 7-8 inch casing.

1240 feet 2 inch tubing on Disk Wall Packer.

Drilled for A. B. Brode and Son.

S. L. Anderson—Driller.

LOG No. 291.

MARY ESTEP FARM.

Right Beaver.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	58	58
Slate .....	40	98
Sand .....	21	119
Slate .....	81	200
Sand .....	29	229
Slate .....	10	239
Sand .....	14	253
Slate .....	69	322
Sand .....	20	342
Slate .....	98	440
Sand—Gas .....	118	558
Slate (Beaver) .....	2	560
Sand—Salt water .....	112	672
Slate .....	30	702
Sand (Horton)—Gas and salt water.....	67	769
Slate .....	19	788
Shelly slate .....	52	840
Sand (Pike)—Gas and oil .....	140	980
Slate .....	14	994
Light sand .....	26	1020

MISSISSIPPIAN SYSTEM.

Slate .....	23	1043
Sand (Maxon)—oil and salt water.....	56	1099

LOG No. 292.

MARY ESTEP FARM.

Right Beaver.

Strata	Thickness	Depth
Soil .....	37	37
PENNSYLVANIAN SYSTEM.		
Slate .....	123	160
Sand .....	102	262
Dark slate .....	173	435
Sand (Beaver) .....	246	681
Coal .....	2	683
Gray sand .....	8	691
Slate .....	25	716
Sand (Horton) .....	159	875
Dark slate .....	45	920
White sand .....	Oil..... 44	964
Slate and shells } (Pike) .....	19	983
White sand } .....	Gas..... 43	1026
MISSISSIPPIAN SYSTEM.		
Dark slate .....	18	1044
White sand (Maxon)—Oil .....	26	1070

LOG No. 293.

HOWARD BR. OF ROCK FORK OF RIGHT BEAVER.

Strata	Thickness	Depth
Soil and Gravel .....		15
PENNSYLVANIAN SYSTEM.		
Sand (water) .....	30	45
Slate .....	50	95
Black sand (water) .....	60	155
Slate .....	40	195
Sand (water) .....	20	215
Slate .....	60	275
Lime and sand shells .....	145	410
Sand .....	40	450
Slate .....	55	505
Sand .....	15	520
Slate .....	10	530
Salt sand .....	220	750
Gas at 650.		
Gas at 690		
Water at 730-745.		
Slate and lime shells .....	35	785
Sand, white .....	48	833
Dark lime .....	12	845
White sand .....	41	886
Coal .....	1	887
Dark sand .....	7	894
Gray sand .....	13	907

## MISSISSIPPIAN SYSTEM.

Black shale .....	11	918
White sand (Maxon) .....	21	939
Oil show 937.		
Black oil show.		
Total depth .....		939

LOG No. 294.

JOHN MARTIN FARM.  
Right Beaver.

Strata	Thickness	Depth
Soil .....	25	25

## PENNSYLVANIAN SYSTEM.

Slate .....	25	50
Coal .....	3	53
Slate .....	17	70
Sand .....	51	121
Slate .....	34	155
Sand .....	55	210
Slate .....	2	212
Sand .....	29	241
Slate .....	194	435
Sand (Beaver)—Gas.....	219	654
Coal .....	2	656
Slate .....	29	685
Sand (Horton) .....	105	790
Slate .....	3	793
Sand .....	31	824
Slate .....	3	827
Sand .....	35	862
Slate .....	35	897
Sand (Pike)—Oil .....	56	953
Slate .....	34	987
Sand .....	10	997
Slate .....	5	1002
Sand .....	18	1020

## MISSISSIPPIAN SYSTEM.

Slate .....	29	1049
Sand (Maxon) .....	67	1116

LOG No. 295.

JOHN MARTIN FARM.

Right Beaver.

Strata	Thickness	Depth
Soil .....	40	40
<b>PENNSYLVANIAN SYSTEM.</b>		
Dark sand .....	15	55
Coal .....	5	60
Black slate .....	35	95
Gray sand .....	15	110
White slate .....	67	177
White sand .....	27	204
Black slate .....	8	212
Gray sand .....	43	255
Black slate .....	57	312
Dark sand .....	20	332
Black slate .....	107	439
Gray sand (Beaver) .....	231	670
Black slate .....	6	676
White sand .....	6	682
Black slate .....	30	712
White sand } salt water.....	137	849
Dark sand } (Horton) .....	10	859
Gray sand } .....	23	882
Black slate .....	30	912
Gray sand } Oil.....	84	996
White slate } (Pike) .....	4	1000
White sand } Oil.....	36	1036
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	8	1044
White sand (Maxon)—Oil.....	43	1087

LOG No. 296.

STEELE CREEK, RIGHT BEAVER CREEK.

Strata	Thickness	Depth
Drift, 10 in. casing .....		16
<b>PENNSYLVANIAN SYSTEM.</b>		
Shale .....	24	40
Shale, hard .....	35	75
Sandstone .....	25	100
Black shale .....	60	160
Sand, white .....	48	208
Black slate .....	12	220
Shale, 8 in. casing .....	60	280
Black slate and shell .....	40	320
Shale .....	30	350

Brown shale and shell .....	15	365
Gray shale .....	37	402
Black slate (gas) .....	8	410
Shale, salt, sand .....	65	475
Shale .....	5	480
Shaly sand .....	20	500
Sand (Oil at 505) .....	10	510
Shale and sand .....	72	582
Sand (Gas) .....	116	698
Slate .....	5	703
Black shale .....	15	718
Sandy shale .....	5	723
Sand (salt water 735 feet, 17 bailers, hole full of water at 760 ft.).....	97	810
Black sandy slate .....	15	825
Gray sand .....	18	843

## MISSISSIPPIAN SYSTEM.

Slate .....	18	861
Black shale .....	11	872
White sand—Gas 881 "Maxon" .....	11	883
White shale .....	5	888
White sand—gas, 800,000 cu. ft. "Maxon"	20	908

Not shot

825 feet 2 in. tubing on packer in 8 in. hole.

Drilled for A. B. Brode & Son.

S. L. Anderson, Driller.

Lyndon Brode, Field Manager.

LOG No. 297.

## JOHN MARTIN FARM.

Right Beaver.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	22	22
Gray sand .....	18	40
Slate .....	160	200
Gray sand .....	30	230
Slate .....	238	468
Gray sand .....	65	533
Black slate .....	8	541
Sand (Beaver) .....	122	663
Dark slate .....	5	668
Gray sand .....	13	681
Dark slate .....	49	730
Sand (Horton) .....	120	850

# DRILLED WELLS—FLOYD COUNTY

301

Dark slate .....	7	857
Gray sand .....	20	877
Dark slate .....	30	907
White sand .....	20	927
Dark slate and shells .....	24	951
Gray and white sand—Oil .....	16	967
Black sandy slate .....	9	976
Light sand .....	9	985

## MISSISSIPPIAN SYSTEM.

Shelly slate .....	15	1000
Black and red shales .....	13	1013
Gray sand—Gas .....	12	1025
Black slate .....	40	1065
Gray sand—Gas .....	18	1083
Black slate .....	8	1091
White sand (Maxon), gas and salt water	51	1142

LOG No. 298.

## JOHN MARTIN FARM. Right Beaver.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	21	21
Sand .....	19	40
Coal .....	3	43
White slate .....	57	100
Coal .....	5	105
Sand .....	30	135
Slate .....	60	195
Sand .....	15	210
Slate .....	95	305
White sand .....	85	390
Slate .....	204	594
Sand (Beaver) .....	246	840
Black shale .....	10	850
Sand (Horton) .....	190	1040
Slate .....	15	1055
Sand (Pike) .....	60	1115

## MISSISSIPPIAN SYSTEM.

Slate .....	20	1135
Shale .....	80	1215
Sand (Maxon)—Oil and salt water .....	52	1267

LOG No. 299.

## OSBORN BR. OF LEFT BEAVER CREEK.

Strata	Feet	Feet
Drift (10 inch casing 43 ft.) .....		35
PENNSYLVANIAN SYSTEM.		
Sandstone, gray .....	15 to	50
Slate and sand shells .....	115 "	165
Sandstone, gray .....	20 "	185
Shale and sand shells .....	87 "	272
Sandstone, white .....	42 "	314
Shale, dark (Cased 8¼ at 320 ft.) .....	12 "	326
Limestone (?) white .....	18 "	344
Sandstone, gray .....	56 "	400
Slate and sand shells .....	125 "	525
Shale, brown .....	10 "	535
Sandstone, white .....	50 "	585
Shale, black .....	15 "	600
Sandstone, white .....	162 "	762
Limestone(?) .....	32 "	794
Sandstone (show of oil at 804 ft., salt water at 819 and 840 ft. could not bail down).....	55 "	849
Shale .....	1 "	850
Sandstone, white .....	10 "	860
Sand and lime shells (cased 6 5-8 in. at 872 ft. pulled out and set at lower depth).....	15 "	875
Sandstone, white .....	25 "	900
Shale, blue, soft .....	35 "	935
Shale and sand shells .....	49 "	984
MISSISSIPPIAN SYSTEM.		
Red rock .....	50 "	1034
Shale and sand shells .....	65 "	1099
Limestone (?) white, sandy .....	16 "	1121
Sandstone, dark gray (salt water 1139 ft. filled up 700 ft. in hole in 6 hours).....	18 "	1139
Sandstone, white .....	76 "	1215
Shale and lime shells (cased 6 5-8 in. at 1230 ft.)	17 "	1232
Limestone, dark .....	8 "	1240
Sandstone, light colored .....	40 "	1280
Limestone, dark .....	30 "	1310
Shale .....	2 "	1312
Limestone, white "Big Lime" (gas at 1417 ft. Est. 50,000 cu. ft. per 24 hrs.).....	160 "	1472
(Drilled to 2151 feet.)		

LOG No. 300.

DAN HOWARD FARM.  
Right Beaver.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	20	20
Slate .....	6	26
Gray sand .....	12	38
Sandy slate .....	27	65
Light sand .....	33	78
Light slate .....	67	165
Gray sand .....	43	208
Light slate .....	22	230
White sand .....	20	250
Black slate .....	50	300
White sand .....	40	340
Black slate .....	60	400
Sand (Beaver)—Gas and salt water .....	268	668
Dark slate .....	26	694
Sand (Horton) .....	146	840
Slate and sand shells .....	18	858
Black slate—Oil show .....	33	891
Sand (Pike)—Oil and salt water.....	79	970
(All Pottsville).		

LOG No. 301.

DAN HOWARD FARM.  
Right Beaver.

Strata	Thickness	Depth
Soil .....	52	52
<b>PENNSYLVANIAN SYSTEM.</b>		
Gray sand .....	15	67
Dark slate .....	12	79
Gray sand .....	14	93
Dark slate .....	72	165
Gray sand .....	45	210
Dark slate .....	212	422
White sand (Beaver)—Gas .....	231	653
Dark slate .....	40	693
White sand (Horton)—Salt water .....	107	800
Coal .....	1	801
Gray and white sand .....	14	815
Dark slate .....	4	819
Black sand .....	15	834
Black slate .....	46	880
Sand (Pike)—Gas and oil .....	59	939
(All Pottsville).		

LOG No. 302. WELL AT HOWARD'S STORE.  
Right Beaver.

Strata	Thickness	Depth
Soil .....	31	31
<b>PENNSYLVANIAN SYSTEM.</b>		
Gray sand	50	81
Dark slate	60	141
Gray sand	13	154
Dark slate	74	228
Gray sand	43	271
Dark slate	216	487
White sand (Beaver)—Gas	171	658
Dark slate	2	660
Sand (Horton and Pike?)—Salt water	234	894
Coal	1	895
Gray sand	20	915
<b>MISSISSIPPIAN SYSTEM.</b>		
Dark slate	20	935
Sand (Maxon)—Gas and oil	107	1042

LOG No. 303. TUCKER ALLEN FARM.  
Right Beaver above Goose Creek.

Strata	Thickness	Depth
Soil .....	43	43
<b>PENNSYLVANIAN SYSTEM.</b>		
Gray sand	16	58
Gray slate	41	99
Gray sand	56	155
Gray slate	107	262
Gray sand	40	302
Gray slate	78	380
Gray sand—Gas	53	433
Dark slate	42	480
White sand (Beaver)	168	648
Dark slate	32	680
White sand (Horton)	94	774
Dark slate	41	815
Gray sand	10	825
Black slate	10	835
Black and gray sands	4	839
Yellow slate	6	845
Sand (Pike)—Oil and gas	92	937
<b>MISSISSIPPIAN SYSTEM.</b>		
Dark slate	10	947
White sand (Maxon)—Salt water	28	975
Dark slate	30	1005

LOG No. 304.

WEBB FARM.

Henry Branch of Right Beaver.

Strata	Thickness	Depth
Soil .....	27	27
<b>PENNSYLVANIAN SYSTEM.</b>		
Dark slate .....	6	33
White sand .....	45	78
Light shale .....	72	150
Gray sand .....	59	209
Dark slate .....	17	226
Gray sand .....	25	251
Dark slate .....	21	272
Gray sand .....	18	290
Dark slate .....	160	450
White sand (Beaver) .....	60	510
Dark slate .....	7	517
White sand (Horton) .....	103	620
Dark slate .....	8	628
White sand .....	20	648
Dark slate .....	24	672
White sand (Pike) .....	78	750
Black slate .....	12	762
White sand (Salt sand)—Gas .....	95	857
<b>MISSISSIPPIAN SYSTEM.</b>		
Dark slate .....	15	872
Red shale .....	76	948
Slate and shells .....	177	1125
Limestone—"Big lime" .....	195	1320
Red shale .....	35	1355
Shelly slate .....	205	1560
Black slate .....	76	1636
Dark sand .....	90	1726
<b>DEVONIAN SYSTEM.</b>		
Brown slate (Devonian) .....	204	1930

LOG No. 305.

T. G. ALLEN FARM.

Right Beaver.

Strata	Thickness	Depth
Soil .....	24	24
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	92	116
Sand .....	10	126
Slate .....	6	132
Sand .....	10	142
Slate .....	35	177
Sand .....	15	192
Slate .....	23	215
Sand .....	10	225
Slate .....	5	230

Sand	46	276
Slate	11	287
Sand	23	315
Slate	54	369
Black sand	13	381
<del>Slate</del>	129	510
White sand	15	525
Black slate	5	530
White sand } (Beaver)		
Salt water	215	745
Coal	4	749
Black slate	3	752
Gray sand	21	773
Slate	9	782
White sand (Horton)	95	877
Black slate	20	897
Sand (Pike?)	50	947
Slate	11	1048
White sand	10	1058
White slate	15	1070
Sand	30	1100
<b>MISSISSIPPIAN SYSTEM.</b>		
Slate	75	1175
Sand (Maxon)—Oil show	32	1207

LOG No. 306

T. G. ALLEN FARM.  
Right Beaver.

Strata	Thickness	Depth
Soil	42	42
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate	7	49
Sand	50	99
Slate	83	182
Sand	68	250
Slate	90	340
Sand	20	360
Slate	100	460
Sand	178	638
Slate } (Beaver)	5	643
Sand	183	826
Coal	2	828
White sand	20	848
Slate	5	853
Sand (Horton)	55	908
Slate	46	954
Sand (Pike)—Salt water	82	1036
Slate	5	1041
Sand	10	1051

MISSISSIPPIAN SYSTEM.

White shale .....	40	1091
Sand (Maxon)—Oil show at 1092 .....	19	1110
Slate .....	6	1116
Sand (Maxon) .....	32	1148
Slate .....	32	1180
Lime—"Big lime" .....	210	1390
Slate .....	50	1440
Red sand .....	47	1487

LOG No. 307.

NATHAN ESTEP FARM.

Right Beaver.

Strata	Thickness	Depth
Soil .....	35	35
PENNSYLVANIAN SYSTEM.		
White sand .....	15	50
Black slate .....	40	90
Dark sand .....	6	96
Black slate .....	86	182
Black sand .....	30	212
Black slate .....	10	222
Gray sand .....	25	247
Black slate .....	85	332
Sand .....	30	362
Slate .....	60	422
White sand (Beaver) .....	275	697
Slate .....	35	732
Sand .....	3	735
Slate .....	10	745
Sand (Horton) .....	150	895
Slate .....	20	915
Sand (Pike) .....	61	976
MISSISSIPPIAN SYSTEM.		
Slate .....	86	1062
White sand (Maxon)—Oil show.....	55	1117

LOG No. 308.

W. N. MARTIN FARM.

Right Beaver.

Strata	Thickness	Depth
Soil .....	38	38
PENNSYLVANIAN SYSTEM.		
Dark sand .....	12	50
Coal .....	4	54
White slate .....	43	97
Gray sand .....	13	110

Black slate .....	76	186
Dark sand .....	38	224
White slate .....	10	234
White sand—Gas .....	20	254
Dark slate .....	56	310
Slate and shale .....	4	314
White sand—Gas .....	22	336
Black slate .....	76	412
White sand—Gas .....	20	432
White slate .....	13	445
White sand (Beaver ?)—Gas .....	218	663
Black slate .....	5	668
Black sand .....	5	673
Slate and shale .....	40	713
White sand—Salt water .....	32	745
Black slate .....	80	825
Sand .....	30	855
Black slate .....	30	885
White sand—Gas .....	11	896
White slate .....	8	904
White sand .....	16	920
MISSISSIPPIAN SYSTEM.		
Black slate .....	106	1026
White sand .....	57	1083

LOG No. 309.

ADAM MARTIN FARM.  
Right Beaver.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	51	51
White slate .....	25	76
Sand .....	114	190
Slate .....	25	215
Dark sand .....	15	230
Red rock .....	28	258
Black slate .....	5	263
Gray sand (Beaver) .....	193	456
White sand (Horton)—Salt water.....	384	840
Black slate .....	10	850
Sand .....	25	875
White slate .....	15	890
Sand .....	10	900
Slate .....	30	930
Sand .....	20	950

MISSISSIPPIAN SYSTEM.

White slate .....	35	985
Sand .....	202	1187
Black slate .....	12	1199
Lime—"Big lime"—Gas at 1350.....	211	1410
Red sand .....	90	1500
Gray sand .....	10	1510
Brown shale—Gas .....	20	1530
White slate .....	955	2485
Hard lime .....	16	2501

LOG No. 310.

GUFFEY WELL.  
Right Beaver.

Strata	Thickness	Depth
Soil .....	45	45

PENNSYLVANIAN SYSTEM.

Black slate .....	5	50
Coal .....	2	52
Gray sand .....	38	90
Black slate .....	69	159
Gray sand .....	104	263
Light slate .....	41	304
Gray sand .....	27	331
Light slate .....	122	453
Gray sand .....	30	483
Dark slate .....	21	504
White sand (Beaver) .....	174	678
Coal and lime shell .....	2	680
Slate .....	34	714
Sand (Horton) .....	116	830
Coal .....	1	831
Gray sand .....	18	849
Black slate .....	3	852
Black sand .....	29	881

MISSISSIPPIAN SYSTEM.

Black slate .....	80	961
White sand—Gas .....	39	1000

LOG No. 311.

DAVID HAYS FARM.  
Right Beaver.

Strata	Thickness	Depth
Soil .....	31	31

PENNSYLVANIAN SYSTEM.

Sand .....	15	46
Slate .....	22	68
Sand .....	12	80
Slate .....	75	155

Sand .....	36	191
Slate .....	9	200
Sand .....	30	230
Slate .....	206	436
Sand (Beaver) .....	154	590
Slate .....	5	595
Sand .....	85	680
Slate .....	4	684
Sand (Horton)—Salt water.....	301	985
Slate .....	5	990
Shelly sand .....	50	1040
Slate .....	64	1104
Sand (Pike)—Oil show and salt water....	44	1148
<b>MISSISSIPPIAN SYSTEM.</b>		
Slate .....	3	1151
Sand (Maxon)—Salt water .....	26	1177

LOG No. 312.

**SUSANNA GEARHART FARM.****Right Beaver.**

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	38	38
Slate .....	3	41
Gray sand .....	15	56
Slate .....	19	75
Gray lime (?) .....	8	83
Black slate .....	22	105
Gray sand .....	15	120
Lime (?) .....	10	130
Black slate .....	45	175
Gray sand .....	100	275
Slate .....	194	469
Sand (Beaver)—Oil, gas and salt water..	123	592
Black slate .....	12	604
White sand (Horton) .....	191	795
Coal .....	1	796
Gray lime (?) .....	12	808
Gray sand .....	40	848
Black slate .....	55	903
White sand (Pike)—Gas.....	90	993
<b>MISSISSIPPIAN SYSTEM.</b>		
Slate and shells .....	20	1013
Reddish sand .....	40	1053
Dark slate .....	2	1055
White sand (Salt sand)—Salt water.....	45	1100
<i>Lime</i> .....	2	1013

LOG No. 313. MARION RICE FARM.  
Prater Fork.

Strata	Thickness	Depth
Soil .....	23	23
PENNSYLVANIAN SYSTEM.		
Light slate .....	18	41
Dark slate .....	20	61
Black slate .....	25	86
Dark slate .....	22	108
Coal .....	4	112
Dark slate .....	70	182
Gray sand .....	4	186
Slate .....	19	205
Dark sand .....	5	210
Black slate .....	26	236
Light slate .....	8	244
Gray sand .....	43	287
Dark slate .....	43	330
Gray sand .....	58	388
Black slate .....	68	456
Gray sand (Beaver) .....	115	571
Black slate .....	18	589
Gray sand	12	601
White sand	Salt water	635
Gray sand		732
White sand		773
Black slate		787
Brown slate .....	4	791
Sand (Pike) .....	76	867
Black slate .....	7	874
Gray sand—Stray or salt.....	40	914
MISSISSIPPIAN SYSTEM.		
Black slate .....	78	992
Gray sand, Maxon .....	28	1020
Lime .....	6	1026
Red shale .....	17	1043

LOG No. 314. JAMES PRATER FARM.  
Head of Prater Fork of Brush Creek.

Strata	Thickness	Depth
Soil .....	46	46
PENNSYLVANIAN SYSTEM.		
Gray sand .....	20	66
Light slate .....	46	112
Gray sand .....	41	153
Light slate .....	87	240
Gray sand .....	30	270

Coal	1	271
Light slate	299	570
Sand (Beaver)—Gas	190	760
Slate	4	764
Sand (Horton)	61	825
Coal	3	828
Sand	30	858
Coal	2	860
Sand	26	886
Coal	1	887
Slate	6	893
Sandy slate	22	915

## MISSISSIPPIAN SYSTEM.

Yellow slate .....	6	921
Red shale .....	10	931
Sand (Maxon)—Gas, oil and salt water....	228	1159

## LOG No. 315.

## HEAD OF PRATER FORK OF BRUSH CREEK.

Strata	Thickness	Depth
Soil .....	46	46
PENNSYLVANIAN SYSTEM.		
Light slate .....	35	81
Gray sand	10	91
Light slate	42	133
Gray sand	30	163
Light slate .....	8	171
Gray sand	62	233
Light slate .....	30	263
Gray sand	14	277
Light slate	76	353
Gray sand .....	20	373
Dark slate	34	407
Gray sand .....	9	416
Light slate .....	27	443
Gray sand .....	55	498
Light slate	99	597
Gray sand .....	6	603
Slate .....	4	607
White sand	145	752
Coal	1	753
Light gray sand } (Beaver and Horton)....	65	818
Coal	1	819
Light gray sand, Pike .....	109	928
Slate .....	2	930
Dark sand .....	10	940

MISSISSIPPIAN SYSTEM.

Black slate .....	6	946
Sand (Maxon)—Gas, oil and salt water....	150	1096
Black slate .....	35	1131
Sand .....	5	1136

LOG No. 316.

JAMES HICKS FARM.  
Head of Brush Creek.

Strata	Thickness	Depth
Soil .....	18	18

PENNSYLVANIAN SYSTEM.

Slate .....	21	39
Gray sand .....	2	41
Slate .....	15	56
Gray sand .....	18	74
Slate .....	26	100
Gray sand .....	10	110
Slate .....	25	135
Gray sand .....	112	247
Slate .....	153	400
Gray sand .....	12	412
Slate .....	38	450
Gray sand .....	25	475
Sandy slate .....	73	548
Sand—gas .....	82	630
Dark slate } (Beaver) .....	5	635
White sand—gas } .....	54	689
Dark slate .....	3	692
White sand—salt water } .....	127	819
Coal and slate } (Horton) .....	2	821
White sand } .....	83	904
Coal .....	1	905
Gray sand .....	7	912
Dark slate .....	38	950
White sand (Pike)—Gas .....	69	1019

MISSISSIPPIAN SYSTEM.

Dark slate .....	30	1039
Sand (Maxon)—Oil and salt water.....	115	1164

LOG No. 317.

**ESTHER HORTON FARM.**  
**Rock Creek.**

Strata	Thickness	Depth
Soil .....	20	20
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	24	44
Sand .....	19	63
Slate .....	57	120
Sand .....	20	140
Slate .....	55	195
Sand .....	12	207
Slate .....	23	230
Sand .....	20	250
Shelly slate .....	200	450
White sand (Beaver)—Gas.....	145	595
Slate .....	2	597
Sand (Horton) .....	92	689
Coal .....	1	690
Black slate .....	28	718
Coal .....	2	720
Black slate .....	6	726
Sand (Pike)—Gas .....	109	835
Black slate .....	12	847
Gray sand—Oil and gas show.....	11	858
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	6	864
White sand (Maxon)—Oil .....	23	887

LOG No. 318.

**WELL ONE MILE ABOVE MOUTH OF COW CREEK.**

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	40	40
Sand and slate .....	160	200
Slate .....	300	500
White sand (Beaver)—Salt water .....	245	745
Coal ....	5	750
Slate .....	110	860
White sand (Horton)—Gas.....	25	885
Slate and shells .....	20	905
Slate .....	10	915
White sand (Pike)—Salt water.....	27	942
(All Pottsville.)		

LOG No. 319.

JOHN BURCHETT FARM.

3 miles up Cow Creek.

Strata	Thickness	Depth
Soil .....	22	22
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	48	70
Coal .....	3	73
Slate .....	77	150
Sand .....	30	180
Slate .....	45	225
Sand .....	30	255
Slate .....	50	305
Sand .....	5	310
Slate .....	115	425
Sand .....	40	465
Slate .....	78	543
Sand (Beaver and Horton) .....	287	830
Black slate .....	27	857
Sand (Pike) .....	61	918
Shelly slate .....	20	938
<b>MISSISSIPPIAN SYSTEM.</b>		
Slate .....	42	980
White sand (Maxon)—Salt water.....	23	1003

LOG No. 320.

G. T. KENDRICK FARM.

Head of Cow Creek.

Strata	Thickness	Depth
Soil .....	33	33
<b>PENNSYLVANIAN SYSTEM.</b>		
Black slate .....	30	63
Gray sand .....	9	72
Dark slate .....	75	147
Gray sand .....	32	179
Dark slate .....	60	239
Gray sand .....	42	281
Dark slate .....	19	300
Gray sand .....	20	320
Dark slate .....	20	340
Gray sand .....	37	377
Dark slate .....	20	397
Gray sand .....	30	427
Dark slate .....	20	447
Gray sand .....	32	479
Dark slate .....	171	650
Coal .....	2	652
Sand .....	10	662
Black slate .....	5	667

Sand (Beaver) .....	53	720
Black slate .....	12	732
White sand (Horton) .....	108	840
Coal .....	1	841
Sand .....	65	906
Black slate .....	10	916
Sand (Pike) .....	107	1023
Dark slate .....	40	1063
Sand (Salt sand) .....	65	1128
MISSISSIPPIAN SYSTEM.		
Dark slate .....	5	1133
Dark sand .....	10	1143
Slate and red shale .....	120	1263
Gray sand .....	8	1271
Slate .....	62	1333
Sand and lime .....	40	1373
Dark slate .....	10	1383
Sand and slate .....	10	1393
Dark slate .....	17	1410

LOG No. 321.

MORGAN WHITTAKER WELL,

GILL OIL CO.

Middle Creek, ½ mile S. W. of Prestonsburg.

Strata	Thickness	Depth
Soil .....	61	61
PENNSYLVANIAN SYSTEM.		
White sandstone .....	5	66
Light slate .....	34	100
Gray sandstone .....	4	104
Light slate .....	36	140
Gray sandstone .....	50	190
Black slate .....	5	195
Gray sandstone .....	65	260
Light slate—Cased at 265' .....	121	381
White sandstone .....	175	556
Coal .....	4	560
Gray sandstone .....	15	575
Dark slate .....	15	590
White sandstone .....	114	704
Black slate—Cased at 709' .....	8	712
Dark sandstone .....	12	724
White sandstone—Salt water at 735'.....	15	739
Black sandstone—Gas and oil show at 763' .....	25	764
Black slate .....	25	789
White sandstone—Gas and salt water at 810' .....	62	851

MISSISSIPPIAN SYSTEM.

Black limestone .....	25	876
White limestone .....	39	915

Top of well is 72 feet below the Van Lear coal.

Drilled by L. H. Gormley.

LOG No. 322.

MOUTH OF PITTS FORK OF MIDDLE CREEK.

Strata	Thickness	Depth
Soil .....	32	32
PENNSYLVANIAN SYSTEM.		
Light slate .....	5	37
Dark sand .....	8	45
Dark slate .....	5	50
Coal .....	2	52
Dark slate .....	20	72
Gray sand .....	55	127
Dark slate .....	30	157
Gray sand .....	20	177
Dark slate .....	65	242
Gray sand .....	50	292
Black slate .....	5	297
Gray sand .....	20	317
Black slate .....	63	380
Gray sand .....	15	395
Black slate .....	95	490
Sand (Beaver)—Oil and salt water.....	282	772
Dark slate .....	2	774
White sand (Horton) .....	30	804
Coal .....	3	807
Gray sand .....	11	818
Dark slate .....	22	840
White sand (Pike)—Gas, oil and salt water .....	233	1073

MISSISSIPPIAN SYSTEM.

Black slate .....	15	1088
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LOG No. 323.

REFITT FARM.

Pitts Fork of Middle Creek.

Strata	Thickness	Depth
Soil .....	22	22
PENNSYLVANIAN SYSTEM.		
Light slate .....	28	50
Gray sand .....	20	70
Black slate .....	30	100
White sand .....	70	170
Black slate .....	8	178

Gray sand .....	82	260
Black slate .....	65	325
White sand .....	58	383
Light slate .....	17	400
Gray sand .....	28	428
Dark slate .....	22	450
Gray sand .....	18	468
Black slate .....	78	546
White sand .....	10	556
Black slate .....	8	564
Very dark slate .....	35	599
White sand .....	16	615
Dark slate .....	49	664
White sand (Beaver)—Salt water.....	142	806
Black slate .....	5	811
Sand (Horton)—Salt water.....	59	870
Black slate .....	17	887
Black sand .....	8	895
Black slate .....	25	920
Sand—Pebbly at base (Pike)—Gas, oil and salt water .....	235	1155

MISSISSIPPIAN SYSTEM.

Black slate .....	16	1171
Limestone—"Big lime" .....	201	1372
Red shale .....	38	1410
Black shale .....	85	1495
White and shelly slate .....	100	1595
Dark slate .....	95	1690
White and shelly slate .....	70	1760
Brown slate } .....	96	1856
White slate } (Devonian) .....	12	1868
Brown slate } .....	268	2136
Black slate } Gas.....	15	2151

LOG No. 324.

GREEN PITTS FARM.  
Head of Pitts Fork of Middle Creek.

Strata	Thickness	Depth
Soil .....	22	22

PENNSYLVANIAN SYSTEM.

Slate .....	80	102
Sand .....	30	132
Black slate .....	37	169
Sand .....	38	207
Slate .....	5	212

**DRILLED WELLS—FLOYD COUNTY**

**319**

Sand .....	37	249
Shelly slate .....	48	297
Sand .....	26	323
Slate .....	77	400
White sand .....	64	464
Slate .....	189	653
White sand (Beaver) .....	118	771
Slate .....	3	774
White sand (Horton)—Gas and salt water	221	995
Very dark sand .....	5	1000
White sand (Pike) .....	156	1156
Dark gray sand—Gas .....	10	1166

**MISSISSIPPIAN SYSTEM.**

Slate .....	18	1184
White sand (Maxon) .....	46	1230

**LOG No. 325.**

**JOSEPH GRAY FARM.  
Left Fork of Bull Creek.**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
Soil .....	8	8

**PENNSYLVANIAN SYSTEM.**

Gray sand .....	37	45
Light slate .....	95	140
Gray sand .....	38	178
Shelly slate .....	77	255
Gray sand .....	105	360
Dark slate .....	91	451
Gray sand .....	20	471
Dark slate .....	30	501
White sand (Beaver)—Gas and salt water	194	695
Dark slate .....	13	708
Coal .....	2	710
White sand (Horton) .....	74	784
Coal .....	1	785
Gray sand .....	35	820
Sand (Pike)—Salt water.....	80	900

**MISSISSIPPIAN SYSTEM.**

Red shale .....	35	935
Gray sand (Maxon) .....	7	942
Red shale .....	20	962
White sand (Maxon sand ?)—Salt water	68	1030

LOG No. 326.

**JOHN GRAY FARM.**  
**Head of Bull Creek.**

Strata	Thickness	Depth
Gravel .....	14	14
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and shale .....	26	40
Coal .....	4	44
Shale and shells .....	266	310
Sand .....	90	400
Shale and shells .....	100	500
Sand (Beaver)—Gas at 610. Water at 625	200	700
Shale .....	22	722
Coal .....	2	724
Sand—Water at 756.....	72	796
Slate and shell .....	50	846
Sand .....	74	920
<b>MISSISSIPPIAN SYSTEM.</b>		
Red shale .....	30	950
Gray shale .....	41	991
Sand (Maxon) .....	93	1084
"Little lime" .....	24	1108
"Pencil Cave" .....	15	1123
"Big lime"—Oil show at 1190.....	162	1285
Sand (Big Injun)—Gas at 1300.....	40	1325
Lime shells .....	268	1593
Brown shale (Sunbury ?).....	20	1613
Lime—Oil show at 1628.....	80	1693
<b>DEVONIAN SYSTEM.</b>		
Black shale and shells (Devonian).....	135	1828
Gray slate .....	15	1843
Shells and shale .....	576	2419
Flinty lime .....	19	2440

LOG No. 327.

**R. S. ELLIOTT FARM.**  
**Head of Big Mud Creek.**

Strata	Thickness	Depth
Soil .....	31	31
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	50	81
Blue sand .....	76	157
Dark slate .....	81	238
Gray sand .....	64	302
Dark slate .....	98	400
Dark sand .....	15	415
Dark slate .....	12	427

# DRILLED WELLS—FLOYD COUNTY

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Gray sand .....	23	450
Dark slate .....	186	636
White sand .....	28	664
Slate .....	20	684
White sand .....	291	975
Dark slate .....	75	1050
White sand .....	50	1100

## MISSISSIPPIAN SYSTEM.

Dark slate .....	23	1123
White sand—Oil and salt water.....	352	1475
Gray sand .....	83	1558
Slate .....	8	1566
Red slate .....	24	1590
Sand—Oil show .....	141	1731
Black slate .....	30	1761

LOG No. 328.

## RIGHT BEAVER CREEK

Keystone Gas Co., J. N. Allen No. 1.

Strata	Thickness	Depth
Drift, 8¼" casing .....	0	45

## PENNSYLVANIAN SYSTEM.

Slate .....	85	130
Sandstone, gray, gas 140 exhausted.....	31	161
Slate .....	50	211
Sandstone, gray .....	12	223
Slate .....	53	276
Casing 6¼ .....		280
Sandstone, gray .....	19	295
Slate .....	74	369
"Beaver" Sandstone, white .....	166	535
Slate .....	8	543
Salt water flooded .....		655
Sandstone, white .....	205	748
Coal .....	2	750
Sandstone, gray .....	18	768
Slate, dark, cased 5 to 770.....	28	796
Slate, yellow, caving .....	5	801
Sandstone, (Pike) Gas 810-827 .....	56	857

## MISSISSIPPIAN SYSTEM.

Slate, black, caving .....	13	870
Sandstone, white .....	15	885
Total depth .....		885

LOG No. 329.

STEELE CREEK, RIGHT BEAVER CREEK.

Pennagrade Oil &amp; Gas Co., T. A. Martin No. 2.

Strata	Thickness	Depth
Drift (10" casing) .....	0	15
<b>PENNSYLVANIAN SYSTEM.</b>		
Limestone .....	25	40
Shells and slate .....	35	75
Sandstone .....	25	100
Black slate (No. 8 casing) .....	50	150
White sand .....	58	208
Black slate .....	12	220
Limestone .....	61	280
Slate and shell .....	40	320
Limestone .....	30	350
Brown shale .....	15	365
Gray slate .....	37	402
Black slate .....	8	410
Limestone .....	60	470
White sand .....	5	475
Limey sand .....	20	500
Sandstone .....	10	510
Limestone .....	72	582
Sandstone .....	116	698
Slate .....	5	703
Black shale .....	15	718
Sandy shale .....	5	723
Sandstone (Salt water 735) .....	87	810
Dark sand .....	10	820
Black slate .....	15	825
Gray sand .....	18	843
Black slate .....	21	864
White sand, "Pike," Gas at 892.....	26	890
White sand, 2,000,000 cu. ft.....		951
Well not shot.		
860 3" tubing on Packer in 6" hole.		
A. B. Brode & Son, contractors.		

LOG No. 330

RIGHT BEAVER CREEK.

Pennagrade Oil & Gas Company. Nathaniel Estep No. 1.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Drift, 10" casing .....	0	42
Sand .....	20	62
Slate .....	98	160
Sand .....	40	200
Slate and shells (292 feet).....	200	400
Sand (8" casing) .....	230	630
"Salt" Sand (Gas 500,000 cu. ft.).....	75	715
Break .....	65	780
Slate .....	54	834
Sand and slate .....	14	848
Sandy slate .....	12	860
Broken up .....	55	915
White sand, oil at 940 .....	29	944
Slate (955 ft. 6%), oil at 978.....	56	990
Dark shale (casing) .....	10	1000
Broken up .....	50	1050
Dark shale (water) .....	6	1056
Slate .....	20	1076
Sand "Maxon," hole full 1146 ft. ....	84	1160
Break .....	1	1161
Dark sandy lime .....	21	1182
Slate .....	3	1185
White sandy lime .....	20	1205
Break .....	1	1206
Sand—"Bradley" .....	25	1231

**MISSISSIPPIAN SYSTEM.**

"Big Lime" (dark) .....	26	1257
"Big Lime" (light, oil at 1271).....	1	1358
Red Limestone, oil at 1293 .....	101	1359
Big Lime, oil at 1311 .....	45	1404
Red Rock .....	13	1417
"Big Injun," oil at 1482.....	83	1500
"Big Injun," gas .....	6	1506
Slate and shell .....	54	1560

Well completed August 14, 1918.

Shot with 65 pounds of 65% gelatin.

1237 feet 4 $\frac{7}{8}$  inches casing.

1240 feet 2 inch tubing on Disk Wall Packer.

Elevation 686 feet.

Drilled for A. B. Brode and Son.

## GRAYSON COUNTY.

LOG No. 331.

## WELL AT MEREDITH.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil and clay .....	10	10
Gray shale .....	28	38
Gray sand .....	5	43
Black shale .....	32	75
Black sand—Asphalt .....	5	80
Black shale .....	25	105
Sand .....	5	110
Black shale .....	40	150
Coal .....	1	151
Black shale .....	5	156
Gray sand .....	10	166
Black rock—Asphalt .....	25	191
Shale .....	2	193
Gray sand .....	13	206
<b>MISSISSIPPIAN SYSTEM.</b>		
Gray shale .....	63	269
Brown lime .....	10	279
Gray shale .....	5	284
Red marl .....	16	300
Dark shale .....	6	306
Gray lime .....	10	316
Gray shale .....	4	320
Gray lime .....	46	366
Gray and white sand .....	46	412
Gray lime .....	33	445
Dark shale .....	5	450
Sand (Cypress ?) .....	60	510
Gray lime .....	92	602
White shale .....	3	605
White lime .....	25	630
Lime—Sulphur water at 774 .....	300	930
Black sandy lime—Gas show .....	10	940
Brown and white lime .....	55	995
Brown shale .....	10	1005
Brown and white lime .....	140	1145
Gray, sandy lime—Gas show .....	15	1160
Gray lime .....	35	1195
Gray shale .....	12	1207
Lime and shale .....	13	1220
Dark gray, sandy lime .....	25	1245
Dark shale .....	20	1265
Dark lime .....	155	1420

# DRILLED WELLS—GRAYSON COUNTY

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Gray sand .....	27	1447
Sand and shale .....	5	1452
Gray and white lime .....	123	1585
Light gray shale .....	13	1598
DEVONIAN SYSTEM.		
Black shale .....	120	1718
Black lime .....	20	1738
Black and white lime .....	5	1743
Gray lime .....	52	1795
Light brown lime .....	30	1825
Gray sandy lime—Oil show .....	15	1840
Gray lime .....	10	1850
White lime .....	50	1900
Fine white sand (lime ?)—Oil show and water .....	10	1910

LOG No. 332.

## JAMES E. MCGREW WELL NO. 1.

Anneta, Grayson County, Kentucky.

Begun December 30, 1916, finished about April 25, 1917.

Elevation 750 feet, estimated.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil and clay .....	8	8
Sand rock .....	3	11
Gray shale .....	5	16
Black rock, asphalt .....	1	17
Blue shale .....	70	87
Gray sand, trace of asphalt .....	40	127
Blue shale .....	28	155
Light gray shale .....	17	172
MISSISSIPPIAN SYSTEM.		
Blue shale .....	18	190
Lime and shale, water .....	10	200
White shale .....	5	205
Marl, red and blue .....	8	213
White shale .....	7	220
Blue shale .....	30	250
Lime shells .....	5	255
Blue shale .....	48	303
Lime, white .....	8	311
Blue shale .....	15	326
Lime, gray, very hard .....	32	358
Shale .....	10	368
Sand .....	45	413

Lime, hard, Kaskaskia .....	35	448
Shale .....	8	456
Sand, lower 15 feet thin bands of sand and shale, Big Clifty .....	42	498
Shale, blue, soft .....	12	510
Lime, gray, moderately hard .....	5	515
Shale, gray, hard .....	5	520
Lime, white, hard .....	10	530
Shale, white, hard .....	4	534
Lime, between 540 and 550, two soft streaks of lime and one about two feet and one about six inches like thick whitewash .....	40	574
Shale, tough, hard, white .....	10	584
Lime, varying in color and hardness to 740 .....	156	740
Lime, gray, sandy, with hard shells, probably Waverly, Blue Lick at 830..	150	890
Lime, white, soft, no grit .....	25	915
Lime, hard, flinty, gritty, cased at 918....	7	922
Lime, brown and white, soft .....	60	982
Lime, dark gray, mixed with white, white part very soft .....	18	1000
Lime, brown and white .....	40	1040
Lime, dark gray, hard .....	30	1070
Lime, dark, brown, hard .....	65	1135
Lime, black .....	9	1144
Lime, brown and gray shales .....	23	1167
Lime, gray .....	35	1202
Lime and shale, mixed with shells oc- casionally .....	70	1272
Shale, sandy, dark .....	3	1275
Shale, sandy, light gray .....	15	1290
Lime, gray, very hard, gas at 1355, about enough to burn three feet high out of casing, no change in rock .....	65	1355
Lime, black, hard .....	45	1400
Lime, gray, soft, shelly .....	10	1410
Lime, gray and mixed with sand.....	5	1415
Lime, white, sandy .....	70	1485
Shale, dove color, soft with hard shells of gray lime .....	35	1520
Gray sand and lime, show of oil at 1523, gas at 1531 .....	19	1539
Shale, green and soft .....	17	1556

DEVONIAN SYSTEM.

Shale, brown Devonian .....	10	1666
Lime, dark, hard, gray .....	25	1691
Lime, white and gray mixed.....	10	1701
Lime, dark brown .....	15	1716
Lime, gray .....	5	1721
Lime, light gray, almost white, trace of oil, very hard .....	34	1755
Lime, brown, very hard .....	15	1770
Lime, gray, soft, white flaked .....	25	1795
Lime, white, hard .....	35	1830
Lime, blue, gray, trace of oil, little salt water .....	5	1835
Lime, white .....	25	1860
Sand, gray, show of oil, stopped on hard shell, strong flow of salt water .....	5	1865
Sand, hard, white .....	10	1876
Lime, gray, mixed with shale.....	25	1900
Lime, brown, moderately soft .....	10	1910
1100 feet of water in well.		
Lime, brown .....	15	1925
Lime, gray, very hard .....	5	1930
Lime, dark gray, trace of asphalt.....	5	1935
Lime, white, hard .....	15	1950
Lime, gray and white .....	35	1985
Lime, gray shale and lime mixed .....	5	1990
Lime, dark gray, changing to light gray	30	2020
Lime, blue gray .....	10	2030
Lime, light brown .....	55	2085
Shale, light gray .....	5	2090
Rock, light gray, shale or rock not de- termined .....	45	2135
Lime, gray .....	25	2160
Shale, blue gray .....	10	2170
Lime and gray shale in thin bed.....	15	2185

Closed about April 25, 1917.

(Top of Silurian and Ordovician indefinite.).

## LOG No. 333.

HUNTER WELL No. 1.  
Leitchfield.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Shale, sand and clay .....	32	32
Lime .....	40	72
Shale .....	28	100
Lime .....	35	135
Blue shale .....	20	155
Sand (Cypress) .....	40	195
Lime .....	20	215
Shale .....	10	225
Lime .....	37	262
Shale .....	13	275
Lime—Sulphur water at 450 and 540.....	295	570
Light brown lime—Water at 570 to 590..	45	615
Gray lime—Cased at 690.....	75	690
Brown lime .....	75	765
Dark lime—Sulphur water .....	50	815
Black lime—Cased at 840—Gas show at 900 .....	136	951
Black lime .....	9	960
Sandy black lime—Gas at 961.....	4	964
(Well starts in Chester and is all in Mississippian).		

## LOG No. 334.

HILL WELL.  
Leitchfield.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	12	12
Sand .....	18	30
Lime .....	50	80
Sand (Cypress) .....	80	160
Shale .....	12	172
Lime—Gas at 320 .....	288	460
Dark brown lime .....	20	480
Gray sandy lime .....	15	495
Brown lime—"Blue Lick" water at 505.....	50	545
Gray lime .....	199	744
White and brown lime—Cased at 762.....	18	762
Dark gray lime—Oil show at 785.....	57	819
Black lime .....	56	875
Dark gray lime—Gas show .....	70	945
Black lime and shale .....	268	1213

# DRILLED WELLS—GRAYSON COUNTY

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## DEVONIAN SYSTEM.

Black shale .....	137	1350
Gray and white lime .....	15	1365
White and brown lime .....	66	1431
Dark brown lime—Gas show at 1433.....	14	1445
Gray and white lime .....	65	1510
Sandy lime—Oil show at 1514.....	12	1522
White lime .....	35	1557
Brown lime .....	5	1562
White lime .....	6	1568
Brown lime .....	35	1608
Gray lime .....	57	1660

Base of Devonian System Undetermined.

LOG. No. 335.

STINSON WELL NO. 1.

Leitchfield.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	12	12
Limestone .....	12	24
Crevice .....	14	38
Limestone .....	127	165
Blue Shale .....	2	167
Limestone .....	63	230
Gray Shale .....	5	235
Limestone .....	10	245
Gray shale .....	50	295
Black shale .....	20	315
Limestone—"Blue Lick" water at 333.....	18	333
Limestone—Cased at 410, Gas at 690.....	577	910

## DEVONIAN SYSTEM.

Black shale .....	126	1036
Shale and lime mixed .....	7	1043
Black shale .....	5	1048
Limestone—white .....	9	1057
Limestone—gray .....	28	1085
Limestone—dark .....	19	1104
Limestone—gray .....	12	1116
Limestone—dark—Oil show at 1116 .....	5	1121
Limestone—brown .....	3	1124
Limestone—gray .....	13	1137
Limestone—brown .....	21	1158
Limestone—gray .....	18	1176
Limestone—white .....	34	1210
Limestone—dark—Oil show .....	20	1230
Limestone—brown .....	21	1251

Base of Devonian System Undetermined.

LOG No. 236.

## ALLEN—WALLACE WELL.

Leitchfield.

Right Beaver.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay	10	10
Lime	18	28
Blue shale	22	50
Lime	40	90
Sand	20	110
Lime	55	165
Sand (Cypress)	55	220
Shale and lime shells	9	229
Blue shale .....	10	239
Blue lime .....	9	248
Blue shale	13	261
Brown lime	16	277
Blue shale	1	278
Sandy lime	6	284
Blue shale	1	285
Lime—Sulphur water at 580	1011	1296
<b>DEVONIAN SYSTEM.</b>		
Black shale	160	1456
Very dark lime .....	14	1470
Gray lime	4	1474
Dark lime	5	1479
Gray lime	52	1531
Dark lime	9	1540
Light gray lime	64	1604
White lime—Gas show at 1609 .....	17	1621
Brownish lime .....	29	1650
Dark lime .....	36	1686
Light lime—Salt water 1860	214	1900
Very dark lime	15	1915
Gray lime	22	1937
Light brown lime	28	1965
Gray lime .....	47	2012
Light brown lime .....	22	2034

(Well starts in Chester).

Base of Devonian and Silurian Systems Undetermined.

**DRILLED WELLS—GRAYSON COUNTY**

**331**

**LOG No. 750. RECORD OF TUCKER WELL NO. 1.**  
**Brady Oil & Gas Company, Emporium, Pa.**  
**James Ross, Driller.**  
**Begun August 17, 1918.**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay (surface) .....	14	14
Big Clifty sand .....	70	84
Missing .....	6	90
Lime, gray .....	10	100
Lime, brown .....	5	105
Missing .....	3	108
Lime, gray .....	36	144
Lime, brown, sandy .....	35	179
Lime, gray .....	10	189
Lime, brownish .....	117	306
Shale or shaly .....	4	310
Lime, lime, gray, brownish .....	74	384
Mud .....	2	386
Lime, gray, brownish .....	31	417
Missing .....	41	458
Lime, light brown .....	24	482
Lime, gray, brownish .....	110	592
Lime, dark, brown .....	8	600
Samples missing, cases last time .....	151	751
Lime, light gray, hard .....	14	765
Lime, light gray, medium .....	35	800
Lime, light gray, hard .....	26	826
Lime, light dark, soft .....	10	836
Lime, light dark, hard .....	14	850
Lime, gray, hard .....	20	870
Lime, dark, medium .....	14	884
Lime, dark, hard .....	91	975
Lime, dark, medium hard .....	35	1010
Lime, dark medium soft .....	55	1065
Lime, dark, medium hard .....	122	1187
Lime, brown sandy, oil .....	10	1197
Lime, brown sandy, oil .....	8	1205
Lime, shelly .....	4	1209
Lime, black .....	29	1238
Lime, gray, white specks .....	6	1244
Lime, light gray, brownish .....	56	1300
Lime, black, sandy .....	8	1308
Black shale, Devonian .....	122	1420
Light and shale mixed, very dark .....	10	1430
Lime, gray with white specks .....	15	1445

Lime, dark .....	45	1490
Lime, brownish gray .....	12	1502
Lime, brownish gray .....	52	1554
Lime, brownish gray, dark .....	6	1560
Lime, brownish gray, dark .....	12	1572
Lime, bluish .....	6	1578
Lime, bluish .....	6	1584
Lime, bluish .....	40	1624

LOG No. 751.

JOHN T. DUNN WELL NO. 1.

Leitchfield, 1918.

Begun February 8, 1918.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	39	39
Lime .....	4	43
Slate or marl, 14" conductor to 42 ft.....	30	73
Sand, supposed to be the Big Clifty .....	58	131
Cave .....	5	136
Lime, St. Louis, St. Genevieve (water at 165 and 10" casing to 158).....	29	165
Slate .....	20	185
Sand, no sample taken .....	15	200
Lime, St. Louis .....	50	250
Slate, soapstone .....	8	258
Lime, gray cased with 8" casing at 386 feet .....	70	328
Lime continued .....	52	380
Slate .....	4	384
Lime, gray .....	31	415
Lime, brown .....	50	465
Lime, gray, brown flakes .....	12	477
Lime, brown .....	10	487
Lime, brown, sulphur water .....	5	492
Lime, gray, soft .....	5	497
Lime, brown, some hard .....	13	510
Lime, brown, hard .....	15	525
Lime, gray, soft .....	5	530
Lime, brownish, 10 ft. soft then 10 ft. hard .....	20	550
Lime, gray, softer and medium .....	10	560
Lime, dark brown, harder .....	11	571
Lime, dark gray, white specks, soft.....	7	578
Lime, brown, hard .....	5	585
Lime, gray, softer, sulphur at 585.....	4	587
Lime, brown .....	18	605

# DRILLED WELLS—GRAYSON COUNTY

333

Lime, very dark, oily, coffee grounds.....	5	610
Lime, very dark, brownish gray.....	17	627
Cased at 616 and 619, last 3-28-1918.		
Lime, light brown .....	2	629
Lime, brown and gray, softer and harder, no samples .....	53	682
Lime, dark gray, white specks.....	1	705
Lime, dark gray, sandy, inky black sul- phur water .....	3	708
Lime, dark gray, white specks .....	4	712
Lime, sandy, oily .....	41	753
Lime, softer, cased last time at 758 feet, no samples .....	5	758
Lime, dark gray, some chert and hard streaks .....	353	1128
Lime, sandy specks .....	15	1143
DEVONIAN SYSTEM.		
Ohio shale .....	137	1280
Lime, gray, last screw sandy.....	38	1318
Lime, gray .....	15	1333
Lime, dark brownish gray .....	6	1339
Lime, gray .....	13	1352
Lime, sandy gray, place for 1st Ohio oil	8	1360
Lime, dark gray, soft flakes in last screw	14	1374
Lime, gritty, some very light specks.....	94	1468
Lime, gray, nearly white .....	5	1473
Lime, shade darker .....	6	1479
Lime, gray, shade lighter .....	16	1495
Lime, sandy, oil sand, little oil .....	10	1505
Lime, nearly white, drilling ceased .....	3	1508

Well finished April 29, 1918.

Authority, James Hancock, Driller.

LOG No. 752.

## PATTERSON WELL NO. 1.

Near Olaten.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Slate .....	12	12
White lime, hard .....	15	27
Oil sand .....	5	32
Blue shale .....	16	48
White lime, hard .....	5	53
Blue shale .....	11	64
White lime, hard .....	31	95
Blue broken lime .....	9	104

Sandy lime	10	114
White lime .....	36	150
White lime	60	210
Brown lime	55	265
White lime .....	33	297
Oil sand	6	303
Gray lime .....	32	335
Blue Lick formation	61	396
Brown lime .....	4	400
Cased 8" hole at .....		400
White lime	2	402
Slate lime	2	404
White lime, hard .....	11	415
Gray lime .....	5	420
Brown lime .....	6	426
Brown and gray lime .....	5	431
Light brown lime, hard	5	438
Gas sand	10	446
Light brown lime .....	19	465
Gray lime, hard .....	5	470
Dark gray lime	44	514
Brown gray lime	8	522
Dark brown lime	23	545
Dark brown lime	32	582
Gray and brown lime, hard .....	8	590
Gray lime, hard .....	10	600
Dark gray lime .....	35	635
Blue and white lime .....	15	650
Dark gray lime, sandy .....	5	655
Brown lime, hard .....	35	690
Dark gray lime, hard .....	45	735
Black lime, soft .....	29	764
Dark gray lime, soft .....	71	835
Black lime, soft	90	925
Gray lime, soft .....	15	940
Oil sand, show of oil .....	6	946
Gray lime .....	11	957
Top of oil sand .....	10	967
Oil sand .....	9	976
Gray lime	59	1036
Gray sandy lime .....	20	1055
Blue shell lime .....	5	1060
Blue lime and slate	5	1065
Blue slate .....	23	1088
Black shale .....	184	1272

Black lime, hard .....	4	1276
Dark black lime .....	4	1280
Black gray lime .....	4	1284
Black lime, soft .....	6	1290
Black and gray lime .....	6	1296
Gray lime .....	4	1300
Hard light brown sand, show of gas .....	14	1314
Brown sand .....	20	1334
Brown sand, soft .....	10	1344
Black lime .....	6	1350
Black lime, soft .....	15	1365
Black lime, hard .....	15	1380
Gray lime .....	7	1387
White lime, soft .....	5	1392

GREEN COUNTY.

LOG No. 337.

RUSSELL FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	8	8
Gray lime .....	20	28
Brown lime .....	93	121
Gray lime .....	19	140
DEVONIAN SYSTEM.		
Black shale .....	48	188
White lime .....	7	195
Sandy lime .....	4	199
Shale .....	2	201
Gas well.		

LOG No. 338.

R. C. WHITE FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	20	20
Gravel .....	2	22
Lime .....	118	140
DEVONIAN SYSTEM.		
Black shale .....	45	185
Gray shale .....	10	195
White sand (lime?) .....	10	205
Lime shell .....	3	208
"Gas sand" .....	19	227
Gas well.		

LOG No. 339.

ADA TURNER FARM.  
Highland.  
(Partial record.)

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	325	325
DEVONIAN SYSTEM.		
Black shale .....	19	344
Salt water .....		at 379

LOG No. 340.

W. A. CHERRY FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Sandy lime .....	100	100
Gray lime .....	75	175
Gray shale .....	81	256
DEVONIAN SYSTEM.		
Black shale .....	42	298
Hard lime .....	8	306
White sand (lime?) .....	18	324
"Gas sand" .....	32	356
SILURIAN SYSTEM.		
Gray shale .....	25	381
Pink shale .....	14	395
Gas well.		

LOG No. 341.

W. O. PENICK FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	2	2
Lime .....	108	110
"Salt sand" .....	2	112
Dark lime .....	38	150
DEVONIAN SYSTEM.		
Black shale .....	50	200
Lime .....	25	225
"Gas sand" .....	24	249
Gas well.		

LOG NO. 342

BUCHANAN FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	6	6
Lime .....	242	248
White shale .....	10	258
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	51	309
Gray lime .....	6	315
Soft white lime .....	26	341
"Gas sand" .....	21	362
Gas well.		

GREENUP COUNTY.

LOG No. 343.

RECORD OF UNITED FUEL-GAS CO.—TRANSYLVANIA OIL & GAS  
CO. JOINT WELL NO. 1.

Drilled on Geo. F. Bradley Farm, Big White Oak Creek,  
Completed June 6, 1918.

Strata	Top	Bottom	Thickness
Surface, gravel, etc.....		12	12
Fresh water .....	12		
<b>MISSISSIPPIAN SYSTEM.</b>			
Big lime .....	12	87	75
Blue clay .....	87	140	53
Slate and shells .....	140	305	165
Sandstone .....	305	350	45
Slate .....	350	415	65
Limestone .....	415	548	133
Black slate .....	548	575	127
Dark shale .....	594	600	6
<b>DEVONIAN SYSTEM.</b>			
Brown shale (cased 794 ft.—8¼ in.)..	675	985	310
White slate .....	985	1065	80
Show of gas .....	1065	1072	7
Ragland sand .....	1085	1120	35
Water at .....	1115		
<b>SILURIAN SYSTEM.</b>			
Niagara lime .....	1120	1420	300
White shale .....	1420	1430	10
Red rock (cased 1520 ft. 6 5-8).....	1430	1550	120
Clinton sand .....	1605	1650	45
Show of oil at .....	1629		
Shale .....	1650	1667	17
Total Depth .....	1667		

## CASING RECORD

10 inch No. 32—100 ft. pulled.

8 1-4 inch No. 24—794ft. left in well.

6 5-8 inch No. 17—1520 ft. pulled.

LOG No. 344.

RECORD OF UNITED FUEL-GAS CO.—TRANSYLVANIA OIL & GAS  
CO. JOINT WELL NO. 2.Drilled on Sanford Bradley Farm, Big White Oak Creek,  
Completed December, 1918.

Strata	Top	Bottom	Thickness
<b>MISSISSIPPIAN SYSTEM.</b>			
Surface, gravel, etc .....		10	10
Fresh water .....	20		10
Lime .....	20	55	35
Slate .....	55	100	45
Blue clay .....	100	300	200
Slate and lime.....	300	425	125
Sand .....	425	435	10
Lime .....	435	525	90
Black slate .....	525	600	75
White slate .....	600	675	75
Lime and black shale.....	675	725	50
Brown shale .....	725	815	90
Lime shell .....	815	825	10
Brown shale .....	825	925	100
Light shale .....	925	995	70
Lime, light, hard .....	995	1315	320
Light shale .....	1315	1325	10
Red rock .....	1325	1450	125
White slate .....	1450	1485	35
Red rock .....	1485	1500	15
Blue shale .....	1500	1510	10
Clinton sand .....	1510	1535	25
Blue shale .....	1535	1575	40
Slate and shells .....	1575	1610	35
Red rock .....	1610	1630	20
Slate .....	1630	1755	125
Lime .....	1755	1765	10
Slate and lime shells .....	1765	2301	536
Total depth of hole .....	2301		
Water at .....	432		
Show of oil and gas .....	1000		
Water—three bailers per hour .....	1015		
Water—hole full .....	1080		
Cave .....	1375	to 1425	

CASING RECORD

13 inch conductor—13 1-2 ft.  
 10 inch casing—106 ft. pulled.  
 8 1-4 inch casing—500 ft. pulled.  
 6 5-8 inch casing—1330 ft. pulled.  
 Devonian and Silurian Systems Indefinite.

HANCOCK COUNTY.

LOG No. 345.

NEWMAN WELL.  
 5 Miles S. of Hawesville.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	10	10
Sand .....	160	170
<b>MISSISSIPPIAN SYSTEM.</b>		
Blue slate (top of Chester?) .....	50	220
Blue lime .....	35	255
Dark slate .....	55	310
Lime .....	110	420
Red slate .....	25	445
Lime .....	75	520
Red slate .....	10	530
Gritty lime—Oil show at 535—water.....	25	555
White lime .....	80	635
White sand—water at 645.....	20	655
Gray lime—"Blue Lick" water at 830.....	225	880
Dark lime .....	300	1180
Gray lime .....	220	1400
Dark lime .....	110	1510
Gray lime .....	290	1800
Dark lime .....	50	1850
Gray lime .....	25	1875
Dark lime .....	25	1900
Gray lime .....	10	1910
Dark lime .....	55	1965
Dark slate .....	45	2010
<b>DEVONIAN SYSTEM.</b>		
Brown slate .....	78	2088
Gray lime } (Devonian) .....	7	2095
Brown slate } .....	30	2125
Gray lime .....	25	2150
White lime—Oil show at 2225.....	170	2320
Dark lime .....	10	2330
White lime .....	23	2353

## HARRISON COUNTY.

LOG No. 346.

WELL AT CYNTHIANA.  
(Partial record.)

Strata	Thickness	Depth
Soil .....	24	24
ORDOVICIAN SYSTEM.		
Dark gray lime .....	52	76
Light, fine-grained lime—sulphur water at 74 .....	19	95
Gray lime .....	55	150
Very dark gray lime .....	at	175
Light dove-colored lime (Tyrone).....	at 215 to	300
Light lime .....	at 350 to	600
Dark dove-colored lime .....	at 670 to	690
Light green shale .....	at	760
Light sandy lime (Calciferous) .....	at 785 to	1000

## HART COUNTY.

LOG No. 347.

## WELL ON DOG CREEK.

Strata	Thickness	Depth.
MISSISSIPPIAN SYSTEM.		
Soil .....	12	12
Gray lime .....	26	38
Blue shale .....	26	64
Hard lime .....	10	74
Blue shale .....	34	108
Gray lime .....	50	158
Dark lime .....	70	228
Light gray lime—salt water .....	50	278
Light gray sand .....	25	303
Gray lime .....	71	374
Dark gray sand .....	24	398
Gray lime .....	120	518
Dark gray sand .....	54	572
Light gray lime .....	30	602
Red lime .....	40	642
Very dark lime .....	93	735
Dark bastard sand—Oil show.....	12	747
Dark gray lime .....	178	925
Dark bastard sand .....	42	967
Very dark lime .....	138	1105
Lead-colored slate(Base of Mississippian)	5	1110

DEVONIAN SYSTEM.

Black shale .....	105	1215
Gray lime .....	25	1240
Open sandy streak—Oil and gas shows....	18	1258
Dark lime .....	14	1272
Dark sandy lime .....	8	1280
Light sandy lime—oil show .....	10	1290
Soft gray lime .....	40	1330
Base of Devonian Indefinite.		

LOG No. 348.

WELL ON DOG CREEK.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	9	9
Gray lime .....	56	65
Blue shale .....	4	69
Dark gray lime .....	1	70
Dark gray sand .....	20	90
Blue shale .....	12	102
Lime .....	28	130
Gray sand .....	7	137
Dark gray shale .....	10	147
Gray bastard sand .....	12	159
Dark gray shale .....	27	186
Gray lime .....	19	205
Coal .....	6"	
Dark gray shale .....	4	209
Gray lime .....	10	219
Dark shale .....	3	222
Gray lime .....	248	470
Brownish-gray lime .....	35	505
Hard gray sand .....	20	525
Gray lime .....	97	622
Dark bastard lime .....	178	800
Dark gray lime .....	15	815
Bastard lime and sand .....	25	840
Black bastard lime .....	80	920
Hard dark sand .....	30	950
Dark bastard lime .....	50	1000
Black bastard slate .....	40	1040
Black bastard lime.....	173	1213
Probably all Mississippian.		

## DEVONIAN SYSTEM.

Black shale .....	105	1318
Hard gray sand .....	10	1328
Black slate .....	6	1334
Gray hard sand (?) .....	2	1336
Light gray sand (?) .....	23	1359
Dark gray sand (?) .....	6	1365
Hard bastard sand (?) .....	6	1371
Hard bastard lime .....	25	1396
Hard gray sand (?).....	24	1420
Reddish gray sand (?) .....	10	1430
Light open sand (?)—strong salt water....	17	1447

The "sand" given below the black shale was probably lime.

LOG No. 349.

## CROGAN FARM.

Dog Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil and gravel .....	18	18
Gray lime .....	40	58
Yellow lime .....	40	98
White slate .....	7	105
Lime .....	5	110
White slate .....	35	145
Lime .....	175	320
"Blue Lick" .....	20	340
Lime .....	155	495
Sandy lime .....	30	525
"Blue stone" .....	15	540
Slate .....	10	550
Lime .....	25	575
Slate .....	8	583
Lime .....	192	775
Sandy lime .....	75	850
Very hard lime .....	250	1100
"Broken" .....	40	1140
White slate .....	5	1145
DEVONIAN SYSTEM.		
Black shale (Devonian) .....	80	1225
Brown, sandy lime—oil show .....	50	1275
Light brown lime .....	20	1295
White lime .....	105	1400

Very Irregular Record.

LOG No. 350.

POMEROY AND HAMILTON WELL.

1½ Miles S. W. of Upton.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	7	7
Lime .....	348	355
Limy shale .....	150	505
Dark shaly lime .....	290	795
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	79	874
Siliceous lime .....	4	878
Brown lime .....	52	930
Dark shaly lime .....	30	960
Gray lime—salt water at 960.....	18	978
Dark shaly lime .....	33	1011
Red shale .....	5	1016
White shaly lime .....	22	1038
Dark slate .....	22	1060
Dark shaly lime .....	25	1085
Dark greenish slate .....	16	1101

HOPKINS COUNTY.

LOG No. 351.

EARLINGTON WELL.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand .....	192	192
Shale .....	17	209
Shale and sand .....	9	218
Coal .....	1	219
Shale .....	45	264
Dark shale and thin coal .....	5	269
Shale .....	23	292
Sand with shale breaks .....	27	319
Hard cap .....	1	320
White sand—water .....	47	367
Black sand .....	2	369
Shale and coal stain .....	2	371
Sand .....	32	403
Shale .....	2	405
Sand—Oil show at 418 .....	77	482
Shale .....	21	503
Sand .....	25	528
Shale .....	80	608
Sand .....	35	643
Shale .....	9	652
Sandy shale .....	19	671
Sand .....	130	801

Pebbly shale .....	12	813
Sand .....	6	819
Blue lime .....	13	831
Shale .....	13	844
Sand .....	78	922
Shale .....	15	937
Sand .....	5	942
Coal .....	3	945
Sand .....	105	1050
Shale .....	1	1051
Sand .....	46	1097
Shale .....	2	1099
Sand with shale breaks .....	23	1122
Sand .....	12	1124
MISSISSIPPIAN SYSTEM.		
Shale .....	4	1138
Lime .....	12	1150
Red shale .....	20	1170
Sand .....	5	1175
Shale .....	15	1190
Sand .....	14	1204
Blue slate .....	10	1214
Sand .....	11	1225
Limy shale .....	32	1257
Sand .....	6	1263
Black shale .....	9	1272
Soft shale .....	44	1316

JOHNSON COUNTY.

LOG No. 352.

THOMAS OSBORN FARM.

Toms Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	39	39
Dark slate .....	126	165
Gray sand .....	210	375
Dark slate .....	95	470
White sand (base of Pottsville).....	85	555
MISSISSIPPIAN SYSTEM.		
"Big lime" .....	159	714
Dark sand .....	136	850
Dark slate .....	170	1020
Black slate .....	15	1035
Gray sand .....	90	1125
White slate .....	20	1145
Black slate (Sunbury?) .....	35	1180
Dark sand (Berea?) .....	30	1210

DEVONIAN SYSTEM.

Black shale .....	400	1610
White slate .....	105	1715
Lime .....	97	1812

LOG No. 353.

FREDERICK MURRAY FARM.  
Toms Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	19	19
Black slate .....	186	205
White sand (base of Pottsville) .....	399	604
MISSISSIPPIAN SYSTEM.		
"Big lime" .....	156	760
Blue sand .....	40	800
Black slate .....	269	1069
Gray sand .....	75	1144
Gray slate and shells .....	61	1205
DEVONIAN SYSTEM.		
Black shale .....	75	1280
White slate } (Devonian?) .....	68	1348
Brown shale } .....	327	1675
White slate .....	125	1800
White lime .....	132	1932

LOG No. 354.

M. F. SLOAN FARM.  
Toms Creek.

Strata	Thickness	Depth
Soil .....	21	21
PENNSYLVANIAN SYSTEM.		
White sand .....	384	405
MISSISSIPPIAN SYSTEM.		
White lime—"Big lime" .....	145	550
Slate and shell .....	330	880
Light sand .....	80	960
White slate .....	30	990
DEVONIAN SYSTEM.		
Black slate .....	480	1470
White slate .....	147	1617
Lime .....	383	2000

LOG No. 355.

BARNETTS CREEK.

Lessee, Leroy Adams Oil Co. Casing Head Elevation 702 Ft.  
Production 5 Barrels Light Green Oil.  
Total Depth 1035 Feet.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sandstone, Pottsville .....	460	460
MISSISSIPPIAN SYSTEM.		
Grey shale .....	10	470
"Mauch Chunk" "Big Lime," Gas 490, St. Louis .....	69	539
Pale green to grey shaly sandstone, Waverly .....	369	908
"Sunberry" shale .....	11	919
"Wier" sand (oil 919-953) .....	34	953
Hard sandy shale—Berea .....	77	1030
DEVONIAN SYSTEM.		
Black shale .....	5	1035

LOG No. 356.

MUD LICK CREEK.

Lessor, Zollie Ward. Lessee, Leroy Adams Oil Co.  
Casing Head Elevation 613 Feet.  
Total Depth 1950.

Strata	Feet	Feet
PENNSYLVANIAN SYSTEM.		
Sandstone—gas and little oil, 200-205.....		280
Shale .....	280	295
Sandy shale .....	295	323
Fine grained sandstone .....	323	335
MISSISSIPPIAN SYSTEM.		
Sandy shale—oil soaked and gas—Big Injun series .....	417	430
Waverly shaly sands .....	430	782
Sunberry .....	782	787
Berea sand fair gas blow .....	787	800
Berea sand .....	800	875
Berea sand but more gas .....	875	885
Sandy shale (Transitional) .....	885	900

DEVONIAN SYSTEM.

Black and varied colors.....	900	1510
Brown coffee shale .....	1510	1520
Oil soaked and gassy limestone		
—"Corniferous" .....	1520	1534
Limestone. (Salt and pepper) .....	1534	1585
Sandy lime fresh water—2 bails.		
Oriskany? .....	1585	1600
Lime .....	1600	1670
Limey shale .....	1670	1675
Limestone, hard .....	1675	1695
Strong gas—very poisonous. Large sul-		
phur percentage .....	1695	1700
Limestone .....	1700	1820

SILURIAN SYSTEM.

Grey shale .....	1820	1825
Limestone—Manlius of Silurian? .....	1825	1950

I.OG No. 357.

J. H. STAMBAUGH FARM.  
Toms Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand and gravel .....	33	33
Black slate .....	12	45
White sand .....	145	190
White slate .....	8	198
White sand .....	81	279
Black slate .....	4	283
White sand (base of Pottsville).....	197	480
MISSISSIPPIAN SYSTEM.		
"Big lime" .....	123	603
White slate .....	200	803
Slate and shells .....	151	954
Black sand .....	70	1024
Gray sand .....	28	1052
DEVONIAN SYSTEM.		
Black shale	128	1180
White shale	50	1230
Black shale	154	1384
White sand and shell	16	1400
Black shale	161	1561
White slate .....	159	1720
Gray lime .....	383	2103
Devonian record irregular.		

## LOG No. 358.

## NANCY WITTEN FARM.

## Toms Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	95	120
Black slate .....	20	140
Black sand .....	368	508
White sand .....	8	516
Black slate (base of Pottsville).....	158	674
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	80	754
Gray sand .....	266	1020
Slate and shale .....	70	1090
Gray sand .....	38	1128
Slate and shells .....	494	1622
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	169	1791
White shale .....	539	2330
Lime .....	10	2340
Black slate .....	145	2485
Devonian record irregular, base indefinite.		

## LOG No. 359.

## J. B. VANHOOSE FARM.

## Toms Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	55	55
Black slate .....	185	240
Brown sand .....	20	260
White slate .....	30	290
Gray sand .....	103	393
White slate .....	42	435
White sand (base of Pottsville) .....	265	700
<b>MISSISSIPPIAN SYSTEM.</b>		
White lime—"Big lime" .....	150	850
Dark sand .....	100	950
White slate .....	244	1194
Gray sand.....	75	1269
Slate shell .....	56	1325
<b>DEVONIAN SYSTEM.</b>		
Black slate .....	500	1825
White slate .....	143	1968
Black shale .....	23	1991
Gray lime .....	15	2006

LOG No. 360.

J. C. MURPHY FARM.  
Toms Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and gravel .....	30	30
Black slate .....	50	80
White sand .....	80	160
Black slate .....	5	165
White sand (base of Pottsville) .....	370	535
<b>MISSISSIPPIAN SYSTEM.</b>		
White lime—"Big lime" .....	158	693
Dark shale .....	150	843
White shale .....	209	1052
Gray sand .....	73	1125
White slate and shell .....	50	1175
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	450	1625
White slate .....	155	1780
White lime .....	90	1870
Dark lime .....	92	1962
Devonian record irregular.		

LOG No. 361.

W. A. STAPLETON FARM.  
Toms Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	21	21
Slate .....	140	161
Black sand .....	35	196
White sand (base of Pottsville) .....	349	545
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	155	700
Black slate .....	235	935
Slate and shells .....	95	1030
Gray sand .....	90	1120
White slate .....	30	1150
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	482	1632
White slate .....	139	1771
Lime .....	94	1865

LOG No. 362.

W. H. CONLEY FARM.

Pigeon Creek of Little Paint Creek. Alt. 980 feet. August 17, 1918.  
Production 1,000,000 cu. ft. gas.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	12	12
Blue shale .....	38	50
Coal .....	1½	51½
Blue shale .....	38½	90
White sand—Oil shows .....	220	310
Sandy shale .....	30	340
Slate .....	65	405
White sand .....	35	440
Slate .....	5	445
Shell .....	7	452
Black slate (base of Pottsville).....	23	475

MISSISSIPPIAN SYSTEM.

"Little lime" .....	10	485
Blue shale .....	20	505
"Big lime" .....	80	585
Sand .....	250	835
Blue shale .....	15	850
Light brown sand—Gas .....	60	910
Greenish blue sand .....	20	930
Brown sand .....	20	950
Black shale (Sunbury).....	20	970
Brown sand (Berea?) .....	60	1030

DEVONIAN SYSTEM.

Black shale .....	360	1390
Black slate and limy shells } (Devonian?) .....	10	1400
Black shale .....	50	1450
Greenish white shale .....	120	1570
Brown shale .....	7	1577
Brown lime—Gas .....	20	1597
Dark blue lime .....	15	1612
White lime .....	28	1640

LOG No. 363.

LITTLE MINE FORK OF PAINT CREEK.

Lessee P. J. White.

Casing Head Elevation 850. Total Depth 2005.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil and shale.....	41	41
Massive sandstone .....	144	185
Shale .....	85	270
Shaly sandstone and cal- careous shale .....	65	335
Shaly lime .....	65	400
<b>MISSISSIPPIAN SYSTEM.</b>		
Pencil cave .....	5	405
Lime .....	77	482
Slate .....	46	528
Sandstone .....	116	644
Slate .....	156	800
Black slate .....	10	810
Sandstone .....	66	876
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	269	1145
White shale .....	85	1230
Sandy lime (Corniferous)..	13	1243
<b>SILURIAN SYSTEM.</b>		
Sandy lime .....	587	1830
Red and pink shales.....	175	2005

LOG No. 364.

JENNYS CREEK.

Lessor, Sherman Rice, No. 1. Lessee, L. C. White.

October 20, 1917. Completed February 14, 1918.

Total Depth 1063 feet.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil, sandy .....		20
Coal .....	5	25
Quicksand .....	23	48
Lime .....	32	80
Sand, white—water .....	40	120
Shale, blue .....	60	180
Lime, sandy—gas .....	15	195
Shale .....	15	205
Lime .....	10	215
Sand, white .....	5	220
Lime .....	20	240
Sand, salt, dark oil .....	30	270
Shale, blue .....	60	330
Sand gas in bottom, very hard.....	170	500
Shale, blue .....	80	580

MISSISSIPPIAN SYSTEM.

Sand, Maxon, little gas .....	7	587
Lime, sandy .....	10	597
Lime, St. Louis, little gas about 665, and little water, about 670—1 bbl. per day salt water .....	110	707
Slate, green .....	25	732
Waverly shale .....	263	995
Hard grey sandy shale .....	7	1002
Shale, brown .....	18	1020
Shale, black .....	5	1025
Sandy shale, show of oil .....	9	1034
Sand, Berea .....	29	1063
Lime, sandy and hard .....	1	1064
Sand pumpings had odor of oil all thru from 1025 to 1063.		

LOG No. 365.

JENNYS CREEK.

Lessor, Sherman Rice, No. 2. Lessee, L. C. White.  
Started April 20, 1918. Completed May 4, 1918.  
Producing Sand, Pottsville. Total Depth, 356 feet.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....		17
Gravel and sand .....	10	27
Sandstone .....	4	31
Lime .....	9	40
Blue shale, very sticky, muds up.....	23	63
Lime .....	20	83
White sand—water .....	42	125
Blue shale .....	58	183
Lime .....	15	198
Blue shale—litt'e gas .....	34	232
Lime .....	20	252
Sandy lime .....	16	268
Dark gray sand—show of light amber oil..	24	292
Pipe clay .....	5	297
Light gray sand—fair show of very heavy green oil .....	15	311
Condition of this sand very rotten—salt water in abundance with oil.		
Shale and slate .....	45	356
8¼ casing set at 179 feet.		

Water conditions so bad in shallow sands, which evidently are  
salt sands, we could do nothing with the oil.

LOG No. 366.

JENNYS CREEK.

Lessor, Sherman Rice, No. 3. Lessee, L. C. White.

Started June 6, 1918. Completed June 21, 1918.

Producing Sand, Pottsville. Total Depth, 314 feet.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....		36
Lime .....	21	57
Sand, very white, small show of heavy black oil .....	40	97
Lime .....	5	102
Slate .....	15	117
Pipe clay—salt water .....	20	137
Blue shale .....	98	235
Lime—little gas .....	7	242
Dark gray sand—little water.....		
Dark gray sand—small show amber oil...		286
Dark gray sand—very rotten—heavy dose of water.....		314
6¼ casing at 164 feet.		

Water conditions so bad in shallow sands, which evidently are salt sands, we could do nothing with the oil.

LOG No. 367.

C. N. WILLIAMS FARM.

One Mile South of Red Bush, Upper Laurel Creek.

Elevation of surface 870.

Strata	Feet
PENNSYLVANIAN SYSTEM.	
Soil .....	20
Slate .....	50
Sand .....	150
Mud .....	33
Sand—settling sand .....	48
Mud .....	7
Black lime .....	5
Mud .....	6
Hard sand .....	7
White lime .....	26
White lime .....	98
Sand .....	12
Slate .....	221
Sand .....	33
Slate .....	3

Oil & Gas—12

Hard cap .....	3
Slate .....	6
Slate and shells .....	8
Hard .....	2
Slate—Sunbury .....	39
Brown sand .....	20
Gas at 832.	
Berea .....	817 to 909
Total depth 909	

LOG No. 368.

WELL NEAR HEAD OF PICKLE FORK OF BARRETTS CREEK.

Leroy Adams (Federal Oil Co.), lessee.

Elevation surface—950 feet—25 feet.

Strata	Thickness	Depth	
PENNSYLVANIAN SYSTEM.			
Sand .....	0 to	20	
Shale .....	73	93	
Shaley sand .....	95	188	
Black shale .....	10	198	
Sandstone .....	102	300	
Dark shale .....	30	330	
Sandstone .....	26	556	
MISSISSIPPIAN SYSTEM.			
Shale .....	4	560	
Lime .....	10	670	Big lime.
Grey shaly sandstone..	345	1015	Lower 80' of this Weir.
Black shale .....	8	1023	Sunbury shale.
“Upper” Berea .....	25	1048	Berea sandstone.
Shale .....	4	1052	
Shaly sand .....	30	1082	
Shale .....	13	1095	

LOG No. 369.

BED ROCK OIL CO., W. H. CONLEY No. 3.

On the Head of Pigeon Creek of Little Paint Creek.

Elevation surface 935.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift .....	0 to	12
Shale—show black oil..	58	70
Sand-fresh water at		
180 .....	245	315
Sandy shales .....	35	440

MISSISSIPPIAN SYSTEM.

Gray shale .....	10	450	
Lime .....	8	458	
Shale, gray .....	5	463	
White lime .....	6	469	
Gray shale .....	10	479	
Lime .....	3	482	
Gray shale .....	3	485	
White lime .....	90	575	Big lime. Casing set at
Sandy lime .....	155	730	497.5.
Gray shale .....	40	770	
Sand .....	5	775	
Sand .....	5	780	212,000 cu. ft. gas.
Hard fine sand .....	5	785	
Black shale .....	40	825	
Gray sand .....	7	832	555,680 cu. ft. gas.
Gray sand .....	8	840	681,120 cu. ft. gas.
Gray sand .....	8	848	823,970 cu. ft. gas
Gray sand .....	20	868	979,000 cu. ft. gas.
Blue shales .....	22	890	

} Weir

Rock pressure 285 pounds.

KNOTT COUNTY.

LOG NO. 376.

BALLS FORK  
5¼ Miles From Hindman.  
Mouth of Mill Branch.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Light shale .....	10	20
Sand .....	4	24
Coal .....	5	29
Dark slate .....	5	34
Gray sand .....	32	66
Coal .....	3	69
Light slate .....	15	84
Sand .....	16	100
Slate .....	20	120
Gray sand .....	27	147
Coal .....	3	150
Black Slate .....	16	166
White sand .....	44	210
Coal .....	4	214
Black slate .....	34	248
Gray sand .....	15	263

Light slate .....	60	323
White sand .....	12	335
Light slate .....	30	365
Coal .....	4	369
Dark slate .....	70	439
Gray sand .....	12	451
Light slate .....	54	505
Sand .....	20	525
Black slate .....	128	653
White sand .....	37	690
Dark slate .....	62	752
White sand .....	25	777
Shelly slate .....	188	965
White sand (Beaver)—Gas and salt water .....	215	1180
Black slate .....	20	1200
Sand (Horton) .....	126	1326
Dark slate—Salt water .....	12	1338
White sand (not all sand)—Salt water....	312	1650

This well reaches down into the Mississippi System but does not touch the Big Lime. It is impossible to note the change from the Pottsville into the Mauch Chunk, for the driller did not record the break in the last 312 feet.

LOG NO. 377.

J. M. CONLEY FARM.  
Head of Salt Lick of Right Beaver.

Strata	Thickness	Depth
Drift .....	22	22
PENNSYLVANIAN SYSTEM.		
Slate .....	30	52
Sand ....	20	72
Coal .....	2	74
Dark slate .....	45	119
Gray sand .....	3	122
Dark slate .....	23	145
White sand .....	49	194
Slate .....	54	248
White sand .....	47	295
Dark slate .....	50	345
White sand .....	48	393
Dark slate .....	45	438
White sand .....	30	468

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Dark slate .....	70	538
Gray and white sand (Beaver-Horton).....	300	838
Coal .....	2	840
Dark slate .....	39	879
Gray and white sand (Pipe)—salt water..	105	984
Dark slate .....	25	1009
Gray sand .....	15	1024

## MISSISSIPPIAN SYSTEM.

Slate .....	156	1180
White sand (Maxon)—oil and salt water	28	1208

LOG No. 378.

## WEBB FARM.

Right Beaver above Jones Fork.

Strata	Thickness	Depth
Soil .....	35	35
PENNSYLVANIAN SYSTEM.		
Coal .....	5	40
Sand .....	40	80
Black slate .....	80	160
Light s'ate .....	70	230
Coal .....	3	233
Slate and sand .....	207	440
White sand (Beaver) .....	40	480
S'ate .....	20	500
White sand (Horton)—gas, oil and salt water .....	220	720
Slate .....	5	725
Sand (Pike)—salt water .....	127	852
Slate .....	35	887
Black sand .....	25	912
White sand (Bradley stray).....	94	1006

## MISSISSIPPIAN SYSTEM.

Black slate.

LOG No. 379.

## WM. TRIPLET FARM.

Jones Fork of Right Beaver.

Strata	Thickness	Depth
Sand and gravel .....	31	31
PENNSYLVANIAN SYSTEM.		
S'ate .....	9	40
Coal .....	3	43
Slate and shells .....	80	123
Black shale .....	27	150

Sand .....	50	200
Slate .....	30	230
Sand .....	20	250
Black slate and shells .....	150	400
Sand—Gas .....	10	410
Slate .....	25	435
Sand (Beaver) .....	180	615
Slate .....	30	650
Sand (Horton) .....	130	780
Slate and sand .....	100	880
Sand (Pike)—black oil at 990.....	110	990

## MISSISSIPPIAN SYSTEM.

Black slate .....	10	1000
Slate and shells .....	51	1051
Sand (Maxon) .....	45	1096

## LOG No. 380.

## LINDSAY TRIPLET FARM.

## Jones Fork of Right Beaver.

Strata	Thickness	Depth
Soil .....	36	36

## PENNSYLVANIAN SYSTEM.

Slate .....	6	42
Black sand .....	160	202
Gray sand .....	110	312
Slate and shells .....	160	472
Gray sand (Beaver) .....	100	572
Slate .....	5	577
White sand (Horton)—salt water .....	203	780
Slate and shells .....	75	855
Black sand .....	20	875
Slate .....	25	900
White sand (Pike) .....	125	1025

## MISSISSIPPIAN SYSTEM.

Slate .....	25	1050
White sand (Maxon) .....	75	1125
Slate .....	20	1145
White sand (Maxon) .....	30	1175
Black slate .....	5	1180
White sand (Maxon)—salt water .....	32	1212

LOG No. 381.

WM. INMAN FARM.  
Rock Fork of Right Beaver.

Strata	Thickness	Depth
Soil .....	24	24
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	30	54
Sand .....	12	66
Slate .....	19	85
Coal .....	2	87
Slate .....	45	132
Sand .....	15	147
Slate .....	41	188
Sand—salt water .....	45	233
Slate .....	68	301
Sand .....	8	309
Slate .....	127	436
Sand .....	20	456
Slate .....	6	462
Sand .....	18	480
Slate .....	8	488
White sand } .....	79	567
Slate } (Beaver) .....	3	570
White sand } Gas and salt water .....	115	685
Slate .....	2	687
Sand .....	22	709
Slate .....	38	747
White and gray sands (Horton)—salt water .....	124	871
Black slate .....	2	873
Gray sand—oil show .....	20	893
Black slate .....	2	895
White sand (Pike)—salt water.....	121	1016
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	35	1051
White sand (Maxon)—oil and salt water .....	106	1157

LOG No. 382.

ESTHER HORTON FARM.  
Rock Fork of Right Beaver.

Strata	Thickness	Depth
Soil .....	21	21
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	100	121
Sand .....	14	135
Slate .....	41	176
Sand .....	36	212
Slate .....	3	215
Sand .....	35	250
Slate .....	151	401

Sand .....	9	410
Slate .....	35	445
White sand (Beaver)	213	658
Coal	2	660
Sand .....	30	690
Coal	1	692
Slate	31	723
Sand (Horton)—oil	39	812
Slate	12	824
Black sand	11	835
Black slate	9	844
Sand	13	857
Slate	5	862
White sand (Pike) gas, oil and salt water	136	998
MISSISSIPPIAN SYSTEM.		
Black slate ..	17	1015
Sand (Maxon)—gas .....	124	1139

## LOG No. 383.

ANDY COBURN FARM.  
Rock Fork of Right Beaver.

Strata	Thickness	Depth
Drift	26	26
PENNSYLVANIAN SYSTEM.		
Slate	38	64
Sand	11	80
Coal	6	86
Slate	9	95
Sand .....	20	115
Slate and red shale	145	260
Coal	8	268
Slate	67	335
Sand	10	385
Slate	77	462
Sand .....	10	472
Slate .....	74	546
Sand (Beaver)—oil and gas	110	694
Slate	14	708
Sand (Horton)—salt water	116	823
Slate	14	837
Gray sand } salt water .....	120	957
Slate } (Pike) .....	28	985
White sand } .....	126	1111
Slate .....	35	1146
MISSISSIPPIAN SYSTEM.		
Sand and slate .....	27	1173
Gray and white sands (Maxon) salt water	31	1204
Black slate .....	18	1222
White sand (Maxon) salt water .....	41	1263

LOG No. 384.

ANDY COBURN FARM.  
Rock Fork of Right Beaver.

Strata	Thickness	Depth
Soil .....	20	20
<b>PENNSYLVANIAN SYSTEM.</b>		
Slate .....	39	59
Sand .....	21	80
Slate .....	12	92
Coal .....	8	100
Sand .....	42	142
Slate .....	48	190
Sand .....	48	238
Slate .....	242	480
Sand (Beaver)—gas and salt water.....	228	708
Slate .....	44	752
Sand .....	20	772
Slate—salt water .....	16	788
Sand—(Horton) .....	63	851
Black slate .....	12	863
Gray sand .....	9	872
Black slate .....	9	881
White sand .....	52	933
Black slate } (Pike) .....	4	937
White sand } .....	82	1019
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	28	1047
White sand .....	51	1098
Slate and shells } (salt sand).....	21	1119
White sand } salt water.....	29	1148

LOG No. 385.

ROCK FORK JUST BELOW BRUSHY FORK. W. R. BOLEN NO. 1.

Lessee, Pennagrade Oil and Gas Co.

Completed July 1916. Production 4,680,000 cu. ft. gas.

Producing Sand "Big Lime."

Casing Head Elevation 950 Aneroid. Total Depth 1635 feet.

Strata	Thickness	Depth
Drift 20 feet 10 inch casing.....		20
<b>PENNSYLVANIAN SYSTEM.</b>		
White sand .....	5	25
Coal .....	5	30
Dark slate .....	120	150
Dark sand 8 inch casing.....	30	180
Slate .....	5	185
Sand .....	30	215
Coal .....	5	220
Slate .....	20	240

Sand .....	70	310
Slate .....	15	325
Sand .....	95	420
Slate .....	15	435
Sand .....	45	480
Slate .....	280	760
Sand .....	148	908
Break .....	2	910
Sand (water at 950) .....	80	990
Break .....	10	1000
Sand (little oil at 1060 feet).....	170	1170
Slate .....	10	1180
Sand .....	40	1220
Shale .....	20	1230
Sand .....	40	1270
MISSISSIPPIAN SYSTEM.		
Slate .....	30	1300
“Maxon” sand (a little water and oil at 1305) .....	123	1423
Black slate .....	14	1437
Sandstone, light sandy .....	13	1451
Slate and shells .....	25	1476
“Little” lime .....	15	1491
“Pencil Cave” shale .....	9	1500
“Big Lime” .....		
Gas in Big Lime at 1630.....	135	1635
4,680,000 cu. ft. gas, open flow 540 pounds Rock Measure.		
Well completed July, 1916.		
Not shot.		
1440 6 5-8 inch casing.		
1637 2 inch tubing.		
Elevation 945 feet.		
A. B. Brode and Son, Contractors.		
S. L. Anderson, Driller.		
135 feet is not the full thickness of the “Big Lime” formation.		

KNOX COUNTY.

LOG No. 386.                      MADELINE GRAY FARM.

Grays Station.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	20	20
Shale .....	80	100
White sand .....	215	315
Black shale .....	30	345
Sand .....	150	495

# DRILLED WELLS—KNOX COUNTY

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Shale .....	8	503
Sand .....	129	632
Coal .....	3	635
Sand (base of Pottsville) .....	275	910

## MISSISSIPPIAN SYSTEM.

Red shale .....	40	950	
Black shale .....	20	970	
Sand .....	10	980	
Red shale .....	25	1005	
Black shale .....	24	1029	
Red shale .....	41	1070	
Lime .....	10	1080	
Black shale .....	28	1108	
Gray lime—"Little lime" .....	70	1178	
Soft shale .....	5	1183	
White lime	} "Big lime"	90	1273
Black lime		4	1277
Gray lime		24	1301
Blue lime		20	1321
Gray lime		15	1336
White lime		14	1350
Gray lime	} "Big Injun"	19	1369
Sand—"Big Injun" .....		27	1396
Black shale	} (Waverly)	24	1420
White shale		5	1425
Dark shale		15	1440
Dark sand		5	1445
Dark shale		10	1455
Sand and shale		85	1540
Sand, lime and shale		32	1572
Light sand		15	1587
Light shale		13	1600
Sand and shale		15	1615
Lime and shale		50	1665

## DEVONIAN SYSTEM.

Black shale	} (Devonian)	120	1785
White shale		5	1790
Sand .....		5	1795
Light shale .....		25	1820
Lime .....		2	1822
Light shale .....		30	1852
Shale and sand .....		48	1900
Light shale .....		30	1930
Lime .....		5	1935
Light shale .....		20	1955
Sand .....		7	1962
Sand and shale .....		12	1974

LOG No. 387.

MALINDA GRAY FARM.

● Lynn Camp Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	20	20
Shale .....	50	70
Sand .....	48	118
Shale .....	39	157
Sand .....	25	182
Shale .....	18	200
Sand .....	40	240
Shale .....	128	368
Sand (Jones sand) .....	66	434
(All Pottsville).		

LOG No. 388.

MALINDA GRAY FARM.

Lynn Camp Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Gravel and sand .....	20	20
Sand .....	60	80
Shale .....	82	162
Sand .....	53	215
Shale .....	51	266
Sand .....	41	307
Shale .....	123	430
Sand .....	59	489
Shale } (Jones) .....	12	501
Sand } .....	101	602
Coal and shale .....	108	721
Sand .....	108	721
(All Pottsville).		

LOG No. 389.

CALEB POWERS FARM.

Near Whitley County Line.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Sand .....	15	25
Shale .....	325	350
Sand .....	45	395
Slate .....	50	445
Sand (Jones) (Beaver?) .....	200	645
Slate .....	5	650
Sand (Horton?) .....	100	750
Coal .....	4	754
Slate .....	5	759
Sand (Pike?) .....	151	910
(All Pottsville).		

LOG No. 390.

BRYANT FARM.  
Near Corbin.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	16	16
Slate and shells .....	69	85
Coal .....	1	86
Sand .....	124	210
Slate and shells .....	20	230
Coal .....	3	233
Slate and shells .....	17	250
Sand .....	185	435
Slate .....	15	450
Sand .....	20	470
Slate .....	2	472
Sand .....	13	485
Slate .....	5	490
Sand .....	38	528
Coal .....	7	533
Slate .....	5	540
Sand .....	55	595
Slate .....	40	635
Slate and shells .....	170	805
Sand .....	15	820
Slate and shells .....	30	850
<b>MISSISSIPPIAN SYSTEM.</b>		
Red rock .....	5	855
Slate .....	5	860
Red rock .....	10	870
Slate and shells .....	75	945
Lime .....	10	955
Slate .....	15	970
Lime .....	15	985
Slate .....	4	989
Lime .....	3	992
Slate .....	4	996
Lime .....	6	1002
Slate .....	3	1005
Lime .....	285	1290
Slate .....	75	1365
Lime .....	15	1380
Slate .....	35	1415

## LOG No. 391.

## WELL AT BARBOURVILLE.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Dark shale	90	90
Sand .....	125	215
Dark shale	25	240
Sand and black shale	25	265
Sand ....	75	340
Sand and black shale	78	418
Sand	42	460
Sand and dark shale	75	535
Sand—oil and salt water	55	590
(All Pottsville).		

## WELL AT BARBOURVILLE.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	23	23
Sand	27	50
Shale	45	95
Slate	65	160
Slate and shale	40	200
Sandy lime	5	205
Slate and shells	110	315
Gray lime ?)	8	323
Slate	27	350
Sand	68	418
Slate	2	420
Sand—oil at 430.....	45	465
(All Pottsville).		

## LOG No. 392.

## C. P. KENNEDY FARM.

East of Barbourville.

Strata	Thickness	Depth
Loam .....	38	38
PENNSYLVANIAN SYSTEM.		
Black sand	22	60
Coal	3	63
Black slate	7	70
Gray sand	15	85
Black slate .....	70	155
Coal .....	1	159
Black slate	6	165
Gray sand	21	186
Black slate	19	205
Gray sand—oil show at 210.....	35	240

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Black slate	68	308
Gray sand	27	335
Black slate	15	350
White sand—oil show at 385 .....	95	445
Black slate	18	463
Gray sand	107	570
Black slate and shells	25	595
White sand	75	670
Black shale	10	680
Black slate .....	40	720
White sand—salt water at 743.....	43	763
Black slate	37	800
Brown sand	60	860
Black shale .....	10	870
White sand	105	975
Black slate	47	1022
White sand	15	1037
Black slate	23	1060
White sand (base of Pottsville).....	15	1075

## MISSISSIPPIAN SYSTEM.

Blue lime .....	15	1090
Red rock	18	1108
White sand .....	5	1113
Red rock	32	1145
Black slate and shells .	63	1208
Red rock .....	20	1228
Blue slate	32	1260
Brown sand—oil show at 1270.....	26	1286
Blue slate .....	32	1260
Blue lime	16	1325
Blue slate	65	1390
Brown lime—gas show at 1395.....	12	1402
White slate	10	1412
White lime—"Big lime"—gas show at 1470 .....	143	1555
Slate and shells .....	260	1815
Blue "flint" .....	15	1830
Gray sand .....	55	1885
White slate and shells .....	20	1905

## DEVONIAN SYSTEM.

Black shale .....	145	2050
White slate and shells .....	135	2185
Pink slate .....	56	2240
White slate .....	15	2255
Red rock	25	2279
Slate and shells	230	2500

Note: Base of Devonian undefined.

## LOG No. 393

## PAYNES CREEK.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	6	6
Sand	14	20
Black shale	35	55
Coal	3	58
Slate and shale	25	83
Sand	5	88
Shale	20	108
Sand	12	120
Shale and slate	64	184
Black shale	18	202
Sand	30	232
Shale	150	382
Sand	40	422
Sand and slate	52	474
(All Pottsville).		

## LOG No. 394.

## PAYNES CREEK.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	12	12
Sand	4	16
Shale	4	20
Sand	40	60
Slate	115	175
Sand	10	185
Shale	127	312
Sand	10	322
Slate	18	340
Sand	10	350
Shale	60	410
Sand	80	490
Slate	20	510
Sand	60	570
Shale	38	608
Sand	222	830
Shale	35	865
Sand and shale	50	915
Coal	3	918
Sand	32	950
Shale	4	954
Sand	49	1003
(All Pottsville).		

**DRILLED WELLS—KNOX COUNTY**

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**LOG No. 395.**

**WM. CARNES FARM.  
Road Fork of Stinking Creek.**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand	29	29
Slate	21	50
Lime and sand	50	100
Coal	2	102
Slate and lime	48	150
Sand	25	175
Slate and lime	50	200
Coal	6	206
Slate and sand	69	275
Slate	25	300
Sand—gas show at 307	50	350
Slate and lime	50	400
Black slate ..	55	455
Broken slate	20	475
White sand	115	590
Slate and sand	40	630
Sand (base of Pottsville)	390	1020
<b>MISSISSIPPIAN SYSTEM.</b>		
Black lime	20	1040
Sand	10	1050
Black lime	25	1075
Sand	225	1300
Slate and shells	60	1360
Sand and lime	10	1370
Red rock	15	1385
Lime and shells	35	1420
Sand	5	1425
Red rock	50	1475
Shells	35	1510
Slate and sand	50	1560
Sand	35	1595
Black lime	15	1610

**LOG No. 396.**

**J. G. BAKER FARM.  
Stinking Creek.**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil	12	12
Coal	4	16
Lime ?)	150	166
Slate .....	200	366
White sand	74	440
Slate	260	700
Sand (base of Pottsville)	400	1100

## MISSISSIPPIAN SYSTEM.

Shell	60	1160
"Broken"	40	1200
Lime	125	1325
Shell .....	40	1365
Sand—oil show at 1335	75	1440
Slate	60	1500
Red rock	40	1540
Red rock and shale	160	1700
Black lime	50	1750
Slate	47	1797

LOG No. 397.

E. HAMMOND FARM.  
Stinking Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	20	20
Slate .....	92	112
Lime (?)	5	117
Sand	11	128
White sand	22	150
Slate	140	290
Sand .....	10	300
Slate and shale .....	197	497
Sand—oil show at 572	75	572
Slate	153	725
Sand .....	48	773
Black slate	10	783
Sand—oil show at 826	67	850
(All Pottsville).		

LOG No. 398.

ANTHONY MILLS FARM.  
Goose Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	6	6
Slate	1	7
Gravel .....	9	16
Slate .....	74	90
Coal	7	97
Fire-clay .....	1	98
Slate .....	55	153
Sand	20	173
Shale	10	183
Slate	26	209
Sand .....	15	224
Shale	52	276
Sand .....	7	283
Slate	92	375
Sand .....	14	389
(All Pottsville).		

LOG No. 399.

ANDERSON FARM—No. 2.  
Big Richland Creek near R. R. Crossing.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	32	32
Shale and clay .....	28	60
Shale .....	28	88
Sand .....	12	100
Shale .....	50	150
Sand .....	43	193
Shale .....	14	207
Sand .....	15	222
Slate .....	26	248
Sand—oil show .....	8	256
(All Pottsville).		

LOG No. 400.

ANDERSON FARM—No. 3.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	22	22
Sand .....	15	37
Slate .....	55	92
Sand .....	51	143
Slate .....	17	160
Sand .....	20	180
Shale .....	33	213
Sand .....	15	228
Slate .....	25	253
Sand—gas .....	10	263
Slate .....	12	275
Sand .....	10	285
Slate .....	30	315
Sand .....	40	355
Slate .....	10	365
Brown shale .....	15	380
Slate .....	26	406
Sand .....	22	428
Slate .....	16	444
Sand .....	62	508
Slate .....	9	517
Sand .....	15	532
(All Pottsville).		

## LOG No. 393.

## PAYNES CREEK.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	6	6
Sand	14	20
Black shale	35	55
Coal	3	58
Slate and shale	25	83
Sand	5	88
Shale	20	108
Sand	12	120
Shale and slate	64	184
Black shale	18	202
Sand	30	232
Shale	150	382
Sand	40	422
Sand and slate	52	474
(All Pottsville).		

## LOG No. 394.

## PAYNES CREEK.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	12	12
Sand	4	16
Shale	4	20
Sand	40	60
Slate	115	175
Sand	10	185
Shale	127	312
Sand	10	322
Slate	18	340
Sand	10	350
Shale	60	410
Sand	80	490
Slate	20	510
Sand	60	570
Shale	38	608
Sand	222	830
Shale	36	865
Sand and shale	50	915
Coal	3	918
Sand	32	950
Shale	4	954
Sand	49	1003
(All Pottsville).		

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LOG No. 395.

WM. CARNES FARM.  
Road Fork of Stinking Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand	29	29
Slate --	21	50
Lime and sand	50	100
Coal	2	102
Slate and lime	48	150
Sand	25	175
Slate and lime	50	200
Coal	6	206
Slate and sand	69	275
Slate	25	300
Sand—gas show at 307	50	350
Slate and lime	50	400
Black slate	55	455
Broken slate	20	475
White sand	115	590
Slate and sand	40	630
Sand (base of Pottsville)	390	1020
<b>MISSISSIPPIAN SYSTEM.</b>		
Black lime	20	1040
Sand	10	1050
Black lime	25	1075
Sand	225	1300
Slate and shells	60	1360
Sand and lime	10	1370
Red rock	15	1385
Lime and shells	35	1420
Sand	5	1425
Red rock	50	1475
Shells	35	1510
Slate and sand .....	50	1560
Sand	35	1595
Black lime .....	15	1610

LOG No. 396.

J. G. BAKER FARM.  
Stinking Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil ..	12	12
Coal .....	4	16
Lime (?)	150	166
Slate .....	200	366
White sand	74	440
Slate	260	700
Sand (base of Pottsville)	400	1100

## MISSISSIPPIAN SYSTEM.

Shell	60	1160
"Broken"	40	1200
Lime	125	1325
Shell	40	1365
Sand—oil show at 1335	75	1440
Slate .....	60	1500
Red rock	40	1540
Red rock and shale	160	1700
Black lime .....	50	1750
Slate	47	1797

LOG No. 397.

B. HAMMOND FARM.  
Stinking Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	20	20
Slate	92	112
Lime (?)	5	117
Sand	11	128
White sand	22	150
Slate	140	290
Sand .....	10	300
Slate and shale .....	197	497
Sand—oil show at 572	75	572
Slate	153	725
Sand .....	48	773
Black slate	10	783
Sand—oil show at 826	67	850

(All Pottsville).

LOG No. 398.

ANTHONY MILLS FARM.  
Goose Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	6	6
Slate	1	7
Gravel .....	9	16
Slate	74	90
Coal	7	97
Fire-clay .....	1	98
Slate	55	153
Sand .....	20	173
Shale	10	183
Slate .....	26	209
Sand .....	15	224
Slate	52	276
Sand .....	7	283
Slate	92	375
Sand .....	14	389

(All Pottsville).

# DRILLED WELLS—KNOX COUNTY

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LOG No. 399.

ANDERSON FARM—No. 2.  
Big Richland Creek near R. R. Crossing.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	32	32
Shale and clay	28	60
Shale	28	88
Sand	12	100
Shale	50	150
Sand	43	193
Shale	14	207
Sand	15	222
Slate	26	248
Sand—oil show	8	256
(All Pottsville).		

LOG No. 400.

ANDERSON FARM—No. 3.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil ...	22	22
Sand	15	37
Slate	55	92
Sand	51	143
Slate	17	160
Sand	20	180
Shale .....	33	213
Sand	15	228
Slate	25	253
Sand—gas .....	10	263
Slate	12	275
Sand	10	285
Slate .....	30	315
Sand	40	355
Slate .....	10	365
Brown shale	15	380
Slate .....	26	406
Sand	22	428
Slate	16	444
Sand	62	508
Slate	9	517
Sand .....	15	532
(All Pottsville).		

LOG No. 401.

## DECATUR JACKSON FARM.

Big Richland Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	10	10
Sand .....	23	33
Shale .....	167	200
Sand—gas .....	10	210
Shale .....	15	225
Sand .....	20	245
Shale .....	55	300
Sand .....	22	322
Shale .....	38	360
Sand (Jones)—salt water at 440.....	323	683
Coal .....	2	685
Sand .....	20	705
(All Pottsville).		

LOG No. 402.

## ANDERSON FARM—No. 4.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Drift .....	55	55
Shale .....	35	90
Sand .....	15	105
Shale .....	10	115
Sand .....	20	135
Shale .....	12	147
Sand .....	18	165
Slate and shells .....	60	225
Sand .....	9	234
Slate .....	28	262
Sand .....	5	267
Shale .....	3	270
Sand .....	10	280
Slate .....	8	288
Sand .....	7	295
Slate .....	120	415
Sand—oil at 421.....	40	455
Slate .....	17	472
Sand—oil show at 497 and 514.....	49	521

LOG No. 403.

ANDERSON FARM—No. 5.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	19	19
Sand .....	11	30
Slate and shells .....	40	70
Slate .....	25	95
Sand .....	20	115
Slate and shells.....	80	195
Slate and sand .....	45	240
Slate .....	15	255
Sand .....	19	274
Slate .....	2	276
Sand .....	14	290
Slate .....	10	300
Slate and shells.....	45	345
Slate .... ..	37	382
Sand .....	8	390
Shale .....	27	417
Sand .....	1	418
Sand—oil show at 462.....	49	467
Slate .....	8	475
Sand .....	19	494
Slate .....	20	514
Sand—oil at 521 .....	26	540

(The wells on the Anderson farm are all in Pottsville).

LOG No. 404.

LUCY MILLER FARM—No. 1.

Near Bailey Switch.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift .....	10	10
Sand and shale .....	30	40
Shale .....	13	53
Sand .....	2	55
Shale .....	45	100
Sand .....	25	125
Sha'e .....	196	321
Sand .....	15	336
Shale .....	49	385
Lime .....	10	395
Sand .....	47	442
Shale .....	12	454
Sand .....	124	578
Shale .....	15	593

Lime .....	4	597
Shale .....	12	609
Sand .....	56	665
Coal .....	5	670
Sand .....	92	762
Shale .....	47	809
Sand .....	71	880
Shale .....	21	901
Slate .....	19	920
(Probably all Pottsville).		

## LOG No. 405.

## LUCY MILLER FARM—No. 3.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand and gravel .....	13	13
Slate .....	9	22
Coal .....	2	24
Slate and shells .....	101	125
Sand—oil show .....	22	147
Slate and shells .....	73	220
Slate .....	2	222
Sand—oil .....	10	232
Slate .....	32	264
Sand .....	17	281
Slate .....	48	329
Sand .....	16	345
Slate .....	5	350

## LOG No. 406.

## LUCY MILLER FARM—No. 4.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift .....	19	19
"Hard pan" .....	4	23
Slate and shells .....	87	110
Sand—oil show .....	80	190
Slate .....	97	287
Sand—oil show .....	5	292
Shale .....	48	340
Sand .....	10	350
Shale .....	15	365
Slate .....	25	390
Sand—oil at 467. Gas at 392.....	82	472
(Wells on the Lucy Miller farm all in Pottsville).		

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LOG No. 407.

W. M. GILBERT FARM.

Big Rich and Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand	60	60
Shale	120	180
Coal	6	186
Sand	18	204
Shale	66	270
Sand—salt water .....	25	295
Shale .....	133	428
Sand (Jones)—oil at 445 .....	67	495

LOG No. 408.

DECATUR JACKSON FARM.

Big Rich and Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	10	10
Shale and sand	22	32
Slate and shale	173	205
Sand	11	216
Shale	14	230
Sand	10	240
Shale and shells .....	60	300
Slate .....	60	360
Sand	125	485
Slate } (Jones) .....	6	491
Sand—salt water } .....	54	545
Slate .....	25	570
Sand .....	30	600

LOG No. 409.

JOHN J. DISNEY FARM.

Big Rich and Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	15	15
Slate .....	35	50
Sand	5	55
Slate	45	100
Shale	140	240
Sand (Wages)—oil show .....	20	260
Shale .....	5	265
Sand .....	10	275
Shale .....	85	360
Sand (Jones)—oil, gas and salt water .....	200	560

## LOG No. 410.

JOHN J. DISNEY FARM.  
Big Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil	15	15
Slate	40	55
Sand	10	65
Sand and shale (Wages)	260	325
Shale .....	70	395
Sand (Jones)	335	630

## LOG No. 411.

J. W. DISNEY FARM.  
Big Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand	30	30
Shale ..	200	230
Sand—water .....	12	242
Shale .....	25	267
Sand—Gas and oil .....	30	297
Shale	50	347
Sand	20	367
Shale	53	420
Sand	35	455
Shale	30	485
Sand	130	615
Shale .....	30	645
Sand	10	655

## LOG No. 412.

MOSS FARM.  
Parrot Branch of Big Richland.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil ...	13	13
Sand .....	15	33
Shale .....	87	120
Sand	55	175
Shale and shells	51	236
Sand	22	258
Shale	22	280
Sand .....	10	290
Shale—gas .....	5	295
Sand—oil .....	7	302
Shale—gas at 380	123	425
Sand—oil show at 470 and 530.....	114	539

Salt water at 535.

(The records on Big Richland are all in Pottsville).

LOG No. 413.

DOZIER FARM.

Fighting Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand .....	16	16
Shale .....	25	41
Coal .....	3	44
Black shale .....	123	167
Lime (?) .....	23	190
Sand (Wages) .....	35	225
Lime (?) .....	15	240
Slate .....	120	360
Sand (Jones) .....	100	460
Slate .....	15	475
Sand (Epperson) .....	250	725
Coal .....	2	727
Sand (Salt) .....	173	900

LOG No. 414.

THOMAS POINDEXTER FARM.

Fighting Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil and gravel .....	30	30
Blue shale .....	20	50
Coal .....	3	53
Shale .....	7	60
White sand .....	40	100
Black slate .....	20	120
Slate and shells .....	72	192
Gray sand .....	12	204
Shale .....	25	229
White sand .....	10	239
Slate and shells .....	30	269
Sand .....	94	363
Slate and shells .....	70	433
White sand .....	12	445
Black slate .....	10	455
Coal .....	4	459
Shale .....	16	475
Sand .....	39	514

## LOG No. 415. JAMES BRINDSTAFF FARM.

## Fighting Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	10	10
Gray sand .....	45	55
Blue slate .....	6	61
White sand .....	12	73
Slate and shell .....	17	90
Blue shale .....	20	110
Slate and shell .....	82	192
Black sand .....	10	202
Slate and shells .....	16	218
White sand—oil show .....	57	275
Slate, shale and shells .....	60	335
Sand (Jones)—oil at 448 and 471.....	166	501

## LOG No. 416. JAMES BRINDSTAFF FARM.

## Fighting Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	10	10
Sand .....	55	65
Brown shale .....	100	165
White sand .....	8	173
Brown shale .....	22	195
Slate and shells .....	23	218
White sand .....	57	275
Slate, shale and shells.....	60	335
Sand (Jones)—oil at 448 and 471.....	166	501

## LOG No. 417. JAMES BRINDSTAFF FARM.

## Fighting Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	10	10
Sand .....	55	65
Brown shale .....	100	165
White sand .....	8	173
Brown shale .....	22	195
White sand .....	86	281
Brown shale .....	49	330
White sand .....	12	342
White slate .....	20	362
White sand .....	10	372
Brown shale .....	20	392
White sand (Jones) .....	88	480

LOG No. 418.

MOLLIE MANISS FARM.

Fighting Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	10	10
Shale .....	15	25
Coal .....	1	26
Shale .....	34	60
Sand .....	30	90
Slate .....	13	103
Coal .....	7	110
Shale .....	80	190
Sand .....	55	245
Shale .....	4	249
Sand .....	106	355
Shale—oil .....	35	390

LOG No. 419.

JAMES GOODIN FARM.

Fighting Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Quicksand .....	15	15
Lime (?) .....	45	60
Slate .....	35	95
Black slate .....	50	145
Lime (?) .....	25	170
White slate .....	25	195
Black slate .....	20	215
Sand .....	62	277
White shale .....	38	315
Black slate .....	35	350
Sand .....	60	410
Slate .....	6	416
Sand .....	16	432
Slate—salt water .....	6	438

LOG No. 420.

JAMES GOODIN FARM.

Fighting Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand .....	15	15
Slate .....	8	23
Sand .....	19	42
Slate .....	30	72
Sand .....	18	90
Dark shale .....	65	155

Lime (?)	15	170
Brown shale	20	190
Lime (?)	10	200
Black shale	7	207
Sand	61	268
Slate	80	348
Sand	40	388
Slate	42	430
Band	54	484

## LOG No. 421.

MARY BARTELOW FARM.  
Fighting Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	18	18
Shale	180	198
Lime (?)	25	223
Band	90	313
Shale	105	418
Sand (Jones)—oil	80	448

## LOG No. 422

H. P. MARTIN FARM.  
Fighting Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	20	20
Sand	80	50
Shale	80	110
Sand	20	130
Slate	70	200
Sand	90	290
Slate	40	330
Sand—gas	80	410
Slate	15	425
Sand—salt water	398	823

## LOG No. 423

H. P. MARTIN FARM.  
Fighting Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand	35	35
Lime (?)	5	40
Shale	200	240
Sand	15	255
Shale	50	305

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<b>Sand</b> .....	<b>40</b>	<b>345</b>
<b>Shale</b> .....	<b>60</b>	<b>405</b>
<b>Sand</b> .....	<b>100</b>	<b>505</b>
<b>Shale</b> .....	<b>40</b>	<b>545</b>
<b>Sand</b> .....	<b>132</b>	<b>677</b>

These well records on Fighting Creek are all of wells in Pottsville.

**LOG No. 424.**

**SI JONES FARM—No. 1.**  
**Little Richland Creek.**  
**Jones "Gusher."**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
<b>PENNSYLVANIAN SYSTEM.</b>		
<b>Clay</b> .....	<b>8</b>	<b>8</b>
<b>Slate</b> .....	<b>30</b>	<b>38</b>
<b>Sand—Black oil show</b> .....	<b>70</b>	<b>108</b>
<b>Slate</b> .....	<b>100</b>	<b>208</b>
<b>Sand</b> .....	<b>20</b>	<b>228</b>
<b>Slate</b> .....	<b>70</b>	<b>298</b>
<b>Sand</b> .....	<b>8</b>	<b>306</b>
<b>Slate</b> .....	<b>44</b>	<b>350</b>
<b>Sand (Jones)—oil</b> .....	<b>30</b>	<b>380</b>

**LOG. No. 425.**

**SI JONES FARM—No. 2.**  
**Little Richland Creek.**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
<b>PENNSYLVANIAN SYSTEM.</b>		
<b>Clay</b> .....	<b>30</b>	<b>30</b>
<b>Slate</b> .....	<b>190</b>	<b>220</b>
<b>Sand</b> .....	<b>10</b>	<b>230</b>
<b>Slate</b> .....	<b>150</b>	<b>380</b>
<b>Sand (Jones)—Oil</b> .....	<b>80</b>	<b>460</b>
<b>Slate</b> .....	<b>40</b>	<b>500</b>
<b>Sand</b> .....	<b>120</b>	<b>620</b>

**LOG. No. 426.**

**SI JONES FARM—No. 3.**  
**Little Richland Creek.**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
<b>PENNSYLVANIAN SYSTEM.</b>		
<b>Soil</b> .....	<b>22</b>	<b>22</b>
<b>Sand</b> .....	<b>10</b>	<b>32</b>
<b>Slate</b> .....	<b>342</b>	<b>374</b>
<b>Sand</b> .....	<b>5</b>	<b>379</b>
<b>Shale</b> .....	<b>2</b>	<b>381</b>
<b>Sand (Jones)</b> .....	<b>12</b>	<b>393</b>

LOG No. 427.

## SI JONES FARM—No. 4.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	7	7
Sand .....	10	17
Slate .....	69	86
Sand .....	9	95
Sand—Oil show .....	18	113
Coal .....	1	114
Shale .....	121	235
Slate .....	25	260
Sand (Jones) .....	207	467
Slate .....	86	553
Sand .....	55	608

LOG No. 428.

## SI JONES FARM—No. 6.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil and sand .....	10	10
Shale .....	30	40
Sand .....	10	50
Shale .....	30	80
Sand—Gas .....	8	88
Black shale .....	172	260
Sand .....	10	270
Shale .....	167	437
Sand—Oil .....	20	457

LOG No. 429.

## SI JONES FARM—No. 7.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	10	10
Sand .....	8	18
Shale .....	85	103
Sand .....	10	113
Shale .....	270	383
Sand (Jones) .....	37	420

LOG No. 430.

SI JONES FARM—No. 8.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	10	10
Sand .....	20	30
Black slate .....	20	50
Sand—thick oil .....	10	60
Black slate .....	100	160
Sand .....	10	170
Black slate .....	80	250
Sand .....	10	260
Black slate .....	180	440
Sand .....	15	455
Black slate .....	16	471

LOG No. 431.

SI JONES FARM—No. 9.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	18	18
Shale .....	430	448
Sand and shale .....	21	469
Shale .....	13	482

LOG No. 432.

SI JONES FARM—No. 10.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	4	4
Sand .....	26	30
Shale .....	50	80
Sand .....	12	92
Shale .....	73	165
Sand .....	20	185
Slate .....	40	225
Hard shale .....	75	300
Slate .....	190	490
Sand (Jones?)—oil show.....	10	500
Slate .....	51	551

LOG No. 433.

## SI JONES FARM—No. 11.

Little Richard Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay and sand .....	35	35
Slate .....	115	150
Sand .....	20	170
Slate .....	55	225
Sand .....	10	235
Slate .....	11	246
Sand .....	8	254
Slate .....	71	325
Sand .....	8	333
Slate and shale .....	69	402
Sand (Jones)—Oil and gas .....	33	435

LOG No. 434.

## SI JONES FARM—No. 12.

Little Richland Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	26	26
Slate .....	132	158
Sand .....	17	175
Slate .....	61	236
Sand .....	12	248
Slate .....	90	338
Sand .....	12	350
Slate and shale .....	75	425
Sand } Oil .....	70	495
Slate } (Jones) .....	5	500
Sand } Oil .....	15	515
Shale .....	35	550
Sand .....	25	575
Shale .....	50	625
Sand—Oil .....	24	649
Slate .....	1	650

# DRILLED WELLS—KNOX COUNTY

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LOG No. 435.

## JOSEPH A. MILLER FARM Little Richland Creek

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	15	15
Sand .....	25	40
White slate .....	20	60
Brown sale .....	20	80
Slate .....	60	140
Sand—Oil show .....	20	150
Slate .....	85	245
Sand .....	15	260
Slate .....	30	290
Black slate—Gas and salt water .....	5	295
Sand (Jones) .....	68	363

LOG No. 436.

## JOSEPH A. MILLER FARM. Little Richland Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	20	20
Shale .....	20	40
Sand .....	31	71
Shale .....	183	254
Sand .....	18	272
Shale .....	36	308
Sand (Jones) .....	32	340

LOG No. 437.

## JOSEPH A. MILLER FARM. Little Richland Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	26	26
Shale .....	20	46
Sand .....	24	70
Shale .....	200	270
Sand .....	12	232
Shale .....	19	301
Sand (Jones) .....	7	308

## LOG No. 433.

## JOSEPH A. MILLER FARM.

## Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	25	25
Shale .....	21	46
Sand .....	23	69
Shale .....	204	273
Sand .....	15	288
<del>Shale</del> .....	20	308
Sand (Jones)	32	340

## LOG No. 439.

## JOSEPH A. MILLER FARM.

## Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	27	27
Shale .....	15	42
Sand .....	20	62
Shale .....	180	242
Sand .....	41	283
Shale .....	28	311
Sand (Jones)	64	375

## LOG No. 440.

## JOSEPH A. MILLER FARM.

## Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM		
Clay .....	28	28
Sand ...	42	70
Shale .....	85	155
<del>Sand</del> .....	30	185
Shale .....	95	280
<del>Sand</del> .....	18	298
<del>Shale</del> .....	32	330
Sand (Jones)	72	402

LOG No. 441.

JOHN WAGES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	9	9
Shale .....	30	39
Sand—black oil .....	15	54
Slate .....	50	104
Sand .....	20	124
Slate .....	20	144
Sand—oil .....	18	162

LOG No. 442.

JOHN WAGES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Shale .....	145	155
Sand .....	5	160

LOG No. 443.

JOHN WAGES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	15	15
Slate .....	120	135
Sand—oil .....	15	150

LOG No. 444.

JOHN WAGES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	18	18
Sand .....	5	23
Shale .....	120	143
Sand .....	20	163
Shale .....	97	260
Sand .....	18	278
Shale .....	27	305
Sand (Jones) .....	92	398
Slate .....	4	402

LOG No. 445.

JOHN WAGES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Sand .....	51	61
Shale .....	110	171
Sand—oil at 182 .....	65	236
Shale .....	10	246
Sand .....	11	257
Shale .....	63	320
Sand (Jones)—oil at 322 and 336.....	50	370

LOG No. 446.

JOHN WAGES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	9	9
Sand .....	49	58
Shale .....	112	170
Sand—oil show .....	28	198
Shale .....	110	308
Sand (Jones)—oil show .....	92	400
Shale .....		

LOG No. 447.

RALPH MAYS FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	35	35
Sand .....	10	45
Black shale .....	155	200
Slate and shale .....	85	285
Sand (Jones)—oil .....	57	342

LOG No. 448.

MARY F. HUGHES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	18	18
Shale .....	264	282
Sand .....	110	392
Black slate .....	46	438
Sand .....	162	600
Black slate .....	3	603
Sand .....	8	611

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Black slate	40	651
White sand	35	736
Black slate	7	743
Blue lime and sand	4	747
White sand	62	809
Black slate	5	814
Blue slate	65	879
Lime and sand	182	1061

LOG No. 449.

## MARY F. HUGHES FARM. Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	10	10
Sand	12	22
Slate	168	190
Sand—oil show	100	515
Slate	60	350
Sand (Jones)	165	515

LOG No. 450.

## N. B. JONES FARM. Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	25	25
Sand	23	48
Shale	100	148
Sand	60	208
Shale	50	258
Sand	25	283
Shale	19	302
Sand (Jones?)—oil	20	322

LOG No. 451.

## N. B. JONES FARM. Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	15	15
Sand	70	85
Shale	90	175
Sand	117	202
Shale	22	224
Sand	59	283
Shale	52	335
Sand (Jones)—oil	69	404

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LOG No. 452.

N. B. JONES FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	35	35
Sand .....	40	75
Shale .....	90	165
Sand .....	65	230
Shale .....	30	260
Sand .....	20	280
Shale .....	30	310
Sand (Jones) .....	88	398

LOG No. 453.

N. B. JONES FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	25	25
Sand .....	40	65
Shale .....	100	165
Sand .....	45	210
Shale .....	80	290
Sand .....	32	322
Shale .....	13	335
Sand (Jones?) .....	37	372

LOG No. 454.

J. W. MILLS FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil and shale .....	170	170
Sand .....	25	195
Shale .....	110	305
Sand (Jones?) .....	45	350

LOG No. 455.

J. W. MILLS FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	5	5
Sand .....	107	112
Shale .....	50	162
Sand .....	40	202
Shale .....	70	272
Sand .....	22	294
Shale .....	3	297
Sand .....	13	310

LOG No. 456.

J. W. MILLS FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	28	28
Sand .....	20	48
Shale .....	100	168
Sand .....	45	213
Shale .....	107	320
Sand (Jones) .....	19	339

LOG No. 457.

J. W. MILLS FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	27	27
Sand .....	35	62
Shale .....	60	122
Sand .....	70	192
Shale .....	70	262
Sand .....	30	292
Shale .....	33	325
Sand (Jones) .....	121	446

LOG No. 458.

THOMAS GIBSON FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	3	3
Sand .....	15	18
Shale .....	15	33
Sand .....	12	45
Shale .....	50	95
Black shale .....	45	140
Sand .....	30	170
Slate .....	110	280
Sand (Jones) .....	20	300

LOG No. 459.

## THOMAS GIBSON FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	3	3
Sand .....	15	18
Shale .....	15	33
Sand .....	12	45
Shale .....	50	95
Black shale .....	45	140
Sand .....	30	170
Slate .....	110	280
Sand (Jones)—gas and oil .....	83	363

LOG No. 460.

## THOMAS GIBSON FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Sand .....	10	20
Shale .....	140	160
Sand .....	30	190
Shale .....	90	280
Sand (Jones) .....	68	348

LOG No. 461.

## THOMAS GIBSON FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	25	25
Shale .....	30	55
Sand .....	5	60
Shale .....	180	240
Black sand .....	5	245
Shale .....	35	280
Sand (Jones)—oil .....	28	308

LOG No. 462.

THOMAS GIBSON FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand .....	60	60
White slate .....	20	80
White sand .....	20	100
Black slate .....	60	160
Sand .....	40	200
Black slate .....	85	285
Sand .....	15	300
Black slate .....	20	320
Sand (Jones)—oil .....	86	406

LOG No. 463.

J. K. PAYNE FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Quicksand .....	10	10
Sand .....	70	80
Shale .....	20	100
Sand .....	30	130
Shale .....	50	180
Sand .....	55	235
Shale .....	45	280
Black sand—salt water .....	20	300
Shale .....	18	318
Sand .....	5	323
Shale .....	10	333
Sand (Jones?)—oil .....	4	337

LOG No. 464.

J. K. PAYNE FARM.  
Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Quicksand .....	18	18
Sand .....	132	150
Shale .....	30	180
Sand .....	75	255
Shale .....	15	270
Sand .....	10	280
Shale .....	5	285
Sand—salt water .....	12	297
Shale .....	30	327

Sand—salt water .....	13	340
Shale .....	2	342
Sand—salt water .....	5	347
Shale—oil show .....	8	355
Sand and shale .....	15	370
Sand (Jones)—oil .....	11	381

LOG No. 465.

**J. K. PAYNE FARM.**  
Little Richland Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Gravel .....	5	5
Sand .....	30	35
Shale .....	25	60
Sand .....	25	85
Shale .....	35	120
Black shale .....	40	160
Shale .....	185	345
Sand (Jones)—oil at 372.....	42	387

LOG No. 466.

**THOMAS C. BARNES FARM.**  
Little Richland Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	12	12
Shale and shells .....	183	195
Sand—oil and water .....	27	222
Shale—oil .....	58	280
Sand .....	8	288
Shale .....	47	335
Sand (Jones)—oil .....	25	360

LOG No. 467.

**THOMAS C. BARNES FARM.**  
Little Richland Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	16	16
Shale .....	29	45
Sand .....	15	60
Shale .....	210	270
Sand .....	20	290
Shale .....	128	418
Sand (Jones) .....	53	471

LOG No. 468.

THOMAS C. BARNES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Quicksand .....	18	18
Slate .....	27	45
Sand .....	20	65
Slate .....	50	115
Sand .....	20	135
Slate .....	85	220
Sand .....	8	228
Shale .....	8	236
Sand .....	25	261
Shale .....	117	378
Sand (Jones)—oil and salt water.....	38	416

LOG No. 469.

THOMAS C. BARNES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	20	20
Shale .....	50	70
Black slate .....	40	110
White sand .....	20	130
Shale .....	50	180
Black sand .....	10	190
Black slate .....	140	330
Sand .....	10	340
Shale .....	35	375
Sand (Jones) .....	30	405

LOG No. 470.

THOMAS C. BARNES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	20	20
Shale .....	20	40
Sand .....	15	55
Slate and shale .....	124	179
Sand .....	15	194
Slate .....	66	260
Sand .....	12	272
Slate .....	73	345
Shale .....	5	350
Slate .....	48	398
Sand (Jones)—oil .....	40	438

LOG No. 471.

## THOMAS C. BARNES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	16	16
Slate and shale .....	184	200
Sandy shale .....	17	217
Slate .....	83	300
Sand—oil .....	10	310
Slate .....	45	355
Sand (Jones)—oil .....	18	373

LOG No. 472.

## THOMAS C. BARNES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	20	20
Sand .....	30	50
Slate .....	131	181
Sand .....	15	196
Slate .....	44	240
Sand .....	20	260
Slate .....	35	295
Sand .....	15	310
Slate .....	74	384
Sand (Jones) .....	69	453

LOG No. 473.

## ELLEN JONES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	56	56
Slate .....	87	143
Sand .....	10	153
Shale .....	242	395
Sand (Jones)—oil .....	15	410

LOG No. 474.

## ELLEN JONES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand .....	26	26
Slate .....	54	80
Sand .....	10	90
Shale .....	38	128

# DRILLED WELLS—KNOX COUNTY

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Slate .....	32	160
Sand .....	15	175
Shale .....	15	190
Sand .....	15	205
Shale .....	72	277
Slate .....	103	380
Sand (Jones)—oil and gas .....	64	444

LOG No. 475.

## ELLEN JONES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand .....	18	18
Shale .....	87	105
Sand .....	6	111
Shale .....	87	198
Sand .....	28	226
Shale .....	142	268
Sand (Jones)—oil .....	36	304

LOG No. 476.

## ELLEN JONES FARM.

Little Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	20	20
Sand .....	15	35
Slate and shale .....	45	80
Sand .....	15	95
Slate and shale .....	310	405
Sand (Jones)—oil show and salt water....	39	444
Slate .....	1	445

LOG No. 477.

## HENRY JACKSON FARM.

Long Branch of Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	13	13
Sand .....	24	37
Sha'e .....	98	135
Sand .....	15	150
Shale .....	95	245
Sand .....	30	275
Shale .....	15	290
Sand (Jones?) .....	101	391

## LOG No. 478.

## HENRY JACKSON FARM.

Long Branch of Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	30	30
Sand	35	65
Shale	70	135
Sand	140	275
Shale	24	299
Sand (Jones?)	99	398

## LOG No. 479.

## GEORGE JONES FARM.

Caleb Branch of Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay	10	10
Sand	40	50
Shale ....	250	300
Sand	50	350
Shale	85	435
Sand (Jones?)—oil .....	92	527

## LOG No. 480.

## GEORGE JONES FARM.

Caleb Branch of Richland Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Shale .....	355	355
Sand .....	30	385
Slate .....	115	500
Sand (Jones?)—oil show at 525 .....	100	600

## LOG No. 481.

## MESSAMORE FARM.

Trace Branch of Little Richland.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	6	6
Shale .....	144	150
Sand .....	15	165
Slate ....	5	170
Sand ....	10	180
Slate and shale	75	255
Sand .....	22	277
Shale .....	21	298
Sand—gas .....	11	309
Black slate and sandy shale	21	330
Sand—oil .....	52	382
Shale .....	70	452
Sand .....	24	476

# DRILLED WELLS—KNOX COUNTY

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LOG No. 482.

JOHN BERRY FARM.  
6 Miles N. of Barbourville.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil	10	10
Sand	30	40
Shale	300	340
Sandy shale	20	360
Shale	40	400
Sand	20	420
Sandy shale	110	530
Sand	160	690
Sandy slate	30	720
Shale	76	796
Slate	4	800
Sand	102	902
Black shale	40	942
White sand (base of Pottsville)	30	972
<b>MISSISSIPPIAN SYSTEM.</b>		
Black lime	12	984
Sand	35	1019
Lime and sand	45	1064
Sand	11	1075
Sand and shale	30	1105
Pink shale	10	1115
Shale and shells	170	1285
Sand	38	1323
Lime and shale	59	1412
White lime	124	1536
Sandy lime—oil show	2	1538
White lime	147	1685
Black lime	71	1756
Red rock	36	1792
<b>DEVONIAN SYSTEM.</b>		
Blue shale	125	1917
Black lime	10	1927
White lime	124	2051
Black lime	43	2094

LOG No. 483.

S. H. JONES FARM.  
Near Cannon P. O.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil	10	10
Sand—oil show at 107	151	161
Shale	44	205
Sand—oil show	1	206
Sandy shale	84	290
Slate	80	370

## OIL AND GAS RESOURCES OF KENTUCKY

Sand ....	8	378
Shale .....	112	490
Coal (?) .....	10	500
Sand—oil show at 609.....	177	677
Black slate .....	41	718
Sand—oil show at 748 .....	84	802
Coal .....	6	808
Lime and shale .....	28	836
Sand .....	39	875
Black slate .....	64	939
Sand .....	5	944
Lime ....	11	955
Sand .....	62	1017
Slate .....	10	1027
Sand—salt water .....	90	1117
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	5	1122
Slate and shells....	68	1290
Sand .....	35	1325
Lime and shale ....	120	1445
White lime .....	130	1575
"Gas sand" .....	38	1613
Lime .....	12	1625

LOG No. 484.

M. E. COLE FARM.

Near Cannon P. O.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	15	15
Sand .....	35	50
Shale .....	85	135
Coal .....	5	140
Black shale .....	10	150
Sand .....	25	175
Shale .....	30	205
Sand .....	153	358
Shale .....	6	364
Sand .....	11	375
Black shale .....	20	395
Shale .....	130	525
Sand .....	67	592
Black slate .....	94	686
Lime .....	24	710
Sand .....	58	768
Lime and shale .....	31	799
Lime .....	56	855

With a few exceptions all the wells on Little Richland are entirely in the Pottsville.

LARUE COUNTY.

LOG No. 485.

WM. BROWN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	2	2
Lime .....	218	220
Blue shale .....	160	380
DEVONIAN SYSTEM.		
Black shale .....	60	440
Lime .....	10	450
Sand (?)—salt water .....	49	499
Pink shale .....	31	530
Black lime .....	90	620
White shale .....	5	625
Lime .....	5	630
Sand (?) .....	10	640
Slate .....	40	680
Lime—salt water .....	70	750
Black lime .....	170	920
Base of Devonian indefinite.		

LOG No. 486.

McDANIEL FARM.

6½ miles E. of Hodgenville.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Hard lime .....	50	50
Limy shale .....	55	105
Soft shale .....	60	165
DEVONIAN SYSTEM.		
Black shale—gas .....	55	220
Porous lime—salt water .....	19	239
Lime .....	11	250
Shaly lime .....	20	270
Lime .....	5	275

LOG No. 487.

VIRGIL HOLLAND WELL.

6 miles E. of Hodgenville.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Mud .....	48	48
Limy shale .....	2	50
Soft shale .....	40	90
Lime .....	15	105
Limy shale .....	10	115
Lime .....	35	150
Limy shale .....	50	200
Lime .....	275	475
Soft shale .....	45	520

DEVONIAN SYSTEM.

Black shale—gas .....	58	578
Hard lime .....	6	584
Porous lime—salt water.....	10	594
Soft shaly lime .....	41	635
Crystalline lime .....	20	655
Shaly lime .....	101	756
White porous lime .....	7	763
Limy shale .....	62	825
Base of Devonian indefinite.		

LOG No. 488.

DEVER FARM.  
5 miles E. of Hodgenville.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Hard lime .....	50	50
Shaly lime .....	115	165
DEVONIAN SYSTEM		
Black shale (Devonian)—gas .....	60	225
Lime .....	20	245
Porous lime—salt water.....	15	260
Shaly lime .....	45	305
Brown porous lime .....	10	315
Limy shale .....	30	345
White porous lime—gas .....	5	350
Limy shale .....	50	400
Base of Devonian indefinite.		

LOG No. 489.

J. B. HOLLAND FARM.  
6 miles E. of Hodgenville.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	200	200
Limy shale .....	20	220
Lime .....	183	403
Soft shale .....	37	440
DEVONIAN SYSTEM		
Black shale (Devonian)—gas .....	63	503
Porous lime—salt water .....	67	570
Dark shale .....	10	580
Reddish shale .....	15	595
Limy shale .....	5	600
White porous lime .....	5	605
Lime .....	30	635

LAUREL COUNTY.

LOG No. 490.

JACKSON WELL.  
1½ miles South of Bernstadt.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	45	45
Blue shale .....	35	80
Soft lime and shale .....	40	120
Hard lime .....	70	190
Water sand (?) .....	20	210
White lime .....	20	230
Gray shale .....	470	700
Black lime .....	70	770
Slate .....	45	815
Blue shale .....	35	850
Black shale .....	50	900
Fire clay (?) .....	110	1010
"Oil sand"—light oil show .....	20	1030
Blue shale .....	5	1035
"Oil sand"—no show .....	46	1081
Blue shale .....	15	1096
"Oil sand"—no show .....	29	1125
Blue shale .....	45	1170
Sand (?) .....	35	1205
Sand and lime .....	695	1900

(A very poor record, base of Pottsville indefinite).

LAWRENCE COUNTY.

LOG No. 491.

BUSSEYVILLE OIL CO. No. 1.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Gravel .....	39	39
Lime .....	11	50
Slate .....	80	130
Sand .....	55	185
Slate .....	225	410
Sand .....	20	430
Slate .....	45	475
Sand .....	160	635
Slate .....	5	640
Sand .....	230	870
Slate (base of Pottsville) .....	10	880

## MISSISSIPPIAN SYSTEM.

"Little lime" .....	20	900
"Big lime" .....	150	1050
Slate .....	10	1060
Shale .....	20	1080
Sand .....	422	1502
Black shale (Sunbury) .....	15	1517
"Berea" sand—oil .....	20	1537

LOG No. 492.

## F. R. BUSSEY FARM.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Gravel .....	30	30
Black slate .....	50	80
White sand .....	15	95
White slate .....	30	125
White sand .....	20	145
Black lime .....	40	185
Black slate .....	15	200
White sand .....	30	230
Black slate .....	15	245
White sand .....	20	265
Coal .....	4	269
Black slate .....	186	455
White sand—oil show at 455 .....	30	485
Black slate .....	70	555
Sand .....	140	695
Black slate .....	20	715
Sand .....	80	795
Black slate .....	30	825
Sand .....	10	835
Black slate .....	30	865
Sand .....	40	905
Black slate (base of Pottsville) .....	30	935

## MISSISSIPPIAN SYSTEM.

Red rock .....	20	955
"Little lime" .....	15	970
Slate .....	10	980
"Big lime" .....	100	1080
Slate and shells .....	215	1295
White slate .....	255	1550
Black slate (Sunbury?) .....	20	1570
Sand .....	28	1598

LOG No. 493.

BUSSEY WELL—No. 2.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	20	20
White sand .....	80	100
Brown slate .....	40	140
White sand .....	80	220
White slate .....	130	350
Lime .....	8	358
Black slate .....	142	500
White sand .....	10	510
Black slate .....	105	615
Sand .....	15	630
Black slate .....	10	640
White sand .....	375	1015
Black slate (base of Pottsville) .....	2	1017
MISSISSIPPIAN SYSTEM.		
Lime—"Big lime" .....	130	1147
Sand .....	60	1207
Slate and shells .....	268	1475
Black slate .....	178	1653
Gray sand and slate break .....	64	1717

LOG No. 494.

LAURA WEBB FARM.

Near Busseyville.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Gravel .....	30	30
Lime .....	10	40
Coal .....	3	43
Black slate .....	17	60
White sand .....	20	80
White slate .....	15	95
White sand .....	25	120
Black slate .....	180	300
White sand .....	25	325
Brown slate .....	50	375
Lime .....	75	450
Black slate .....	30	480
White sand (base of Pottsville) .....	405	885

## MISSISSIPPIAN SYSTEM.

Lime—"Big lime" .....	130	1015
White sand .....	10	1025
Slate and shells .....	453	1478
Black shale (Sunbury) .....	21	1499
"Berea sand" .....	35	1534
Black slate .....	3	1537
White sand .....	21	1558.

## DEVONIAN SYSTEM.

Black slate .....	26	1584
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LOG No. 495.

O'NEAL FARM—No. 2.  
Near Busseyville.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	12	12
White sand .....	28	40
Black slate .....	140	180
White sand .....	20	200
Black slate .....	400	600
White sand (base of Pottsville) .....	390	990

## MISSISSIPPIAN SYSTEM.

Blue shale .....	10	1000
Lime—"Big lime" .....	150	1150
Sand .....	15	1165
White shale .....	10	1175
White sand .....	25	1200
Slate and shells .....	300	1500
White slate .....	133	1633
Brown shale (Sunbury) .....	20	1653
"Berea" sand .....	61	1714

LOG No. 496.

JASON BOGGS—No. 1.  
Brier Fork of Cains Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Slate—cased at 60 ft. ....	55	65
Sand .....	15	80
Slate and broken sand .....	172	252
Slate .....	197	449
Sand .....	3	452
Slate .....	6	458
Sand .....	12	470
Slate (base of Pottsville) .....	25	495

# DRILLED WELLS—LAWRENCE COUNTY

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## MISSISSIPPIAN SYSTEM.

"Big lime" .....	135	630
Dark slate .....	10	640
"Big Injun" sand and lime .....	197	837
Slate .....	8	845
Sand—Gas at 865 .....	125	970
Slate—cased at 976 ft.....	20	990
Black shale (Sunbury?) .....	15	1005
Berea sand .....	76	1081
Light slate .....	19	1100

## DEVONIAN SYSTEM.

Brown shale .....	470	1570
White slate .....	108	1678
Black lime and slate .....	10	1688
Sand—Gas at 1690 .....	10	1698

LOG No. 497.

JASON BOGGS—No. 2.

Brier Fork of Cains Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Slate .....	30	40
Sand .....	20	63
Slate—gas—cased at 63 ft. ....	12	75
Sand .....	15	90
Slate .....	158	248
Sand .....	192	440
Slate .....	4	444
Sand .....	8	452
Slate (base of Pottsville) .....	38	490
MISSISSIPPIAN SYSTEM.		
"Big lime" .....	147	637
Slate .....	5	642
"Big Injun" sand .....	23	665
Lime and sand .....	174	839
Slate .....	49	888
Sand .....	64	952
Slate .....	25	977
Black slate—cased at 980 ft. ....	28	1005
Berea sand .....	91	1096
Light slate .....	19	1115
DEVONIAN SYSTEM.		
Black shale .....	455	1570
White Slate .....	112	1682
Sand and lime—Gas at 1684 .....	8	1694

LOG No. 498.

O'BRIEN WELL.  
4½ Miles South of Louisa.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	35	35
Black slate .....	40	75
Coal .....	2	77
Sand .....	51	128
Dark slate .....	127	255
Sand .....	95	350
Dark slate .....	85	435
Gas sand (?) .....	60	495
Dark slate .....	15	510
Salt sand (?) .....	250	760
Dark slate .....	20	780
Sand .....	100	880
MISSISSIPPIAN SYSTEM.		
Slate .....	90	970
Rcd shale .....	15	985
Lime .....	20	1005
Sand .....	50	1055
Black slate .....	10	1065
"Big lime" .....	175	1240
Slate and shells .....	520	1760
Sand .....	40	1800
Dark slate .....	20	1820

LOG No. 499.

YOUNG WELL.  
Cherokee Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand .....	40	40
Blue shale .....	40	80
Black slate .....	150	230
Light slate .....	20	250
Blue shale .....	60	310
White sand .....	80	390
White shale .....	10	400
White sand (Pottsville) .....	90	490

MISSISSIPPIAN SYSTEM.

Slate .....	50	540
"Big Lime" .....	110	650
Dark slate .....	10	660
Light slate .....	430	1090
Black shale (Sunbury) .....	40	1130
White sand (Berea?) .....	80	1210

DEVONIAN SYSTEM.

Brown shale .....	510	1720
White shale .....	100	1820
Sand—Gas show .....	130	1950

LOG No. 500.

S. A. GARRED WELL.  
Near Gallup.

Strata	Thickness	Depth.
PENNSYLVANIAN SYSTEM.		
Drift .....	40	40
Slate .....	80	120
Sand .....	10	130
Slate .....	5	135
Sand .....	15	150
Slate .....	70	220
Coal .....	2	222
Slate .....	18	240
Sand .....	90	330
Shale .....	5	335
Sand (base of Pottsville) .....	270	605
MISSISSIPPIAN SYSTEM.		
"Big Lime" .....	197	802
Slate .....	18	820
Red rock .....	2	822
Shells and slate .....	404	1226
Brown slate (Sunbury) .....	12	1238
"Berea"—gas show at 1250 .....	50	1288
Slate (part Devonian) .....	812	2100
Sand and lime—gas show at 2340.....	770	2870
Red rock .....	130	3000
Slate .....	30	3030
Red rock .....	20	3050
Slate .....	80	3130

Base of Mississippian and Top of Devonian Systems indefinite  
—within 812 feet marked part Devonian.

## LOG No. 501.

## BROAS WELL.

Hood Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	18	18
Sand .....	4	22
Clay .....	7	29
Sand .....	78	117
Shale .....	52	169
Sand .....	50	219
Coal .....	2	221
Slate (base of Pottsville) .....	12	233
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	104	337
Sand .....	27	364
Lime—oil at 320 .....	26	390
Slate and shale .....	384	774
Sand .....	100	874
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	580	1454
Sand .....	16	1470
Lime .....	145	1615

## LOG No. 502.

## F. F. WELL ON BIG BLAINE CREEK.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	12	12
Shale .....	6	18
Sand .....	32	50
Black shale .....	94	144
White sand .....	24	168
Black shale .....	3	171
Dark sand .....	21	192
Gray sand and pebbles .....	7	199
White sand .....	21	220
Coarse pebbles—Oil show .....	12	232
Coarse white sand—Oil show .....	44	276
Sand and shale .....	25	301
Coarse white sand and pebbles—Oil and gas .....	25	326
"Honeycomb" sand .....	40	366
(All Pottsville.)		

LOG No. 503.

GRIFFITHS CREEK WELL.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sands and shales (Pottsville) .....	790	790
<b>MISSISSIPPIAN SYSTEM.</b>		
Limestone—"Big lime" .....	152	842
Blue shale—Oil at 1423.....	481	1423
Gray sand—oil at 1510.....	87	1510
Missing .....	20	1530
Hard shale .....	4	1534
<b>DEVONIAN SYSTEM.</b>		
Black shale and lime shells .....	644	2178
Lime—(Corniferous?)—Oil .....	3	2181
Blue shale—Gas at 2211 .....	30	2211
Green shale—Gas at 2350 .....	158	2369
Black and blue shales .....	38	2407

LOG No. 504.

BERRY WELL.  
Hood Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	20	20
Shale .....	82	102
Sand .....	49	151
Shale .....	9	160
Sand .....	63	223
Shale .....	4	227
Sand .....	173	400
Shale (base of Pottsville).....	95	495
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime—"Big Lime" .....	152	647
Shale and sand .....	195	842
Sand.. .....	48	890
Blue shale .....	15	905
Black shale .....	195	1100
Sand and shale .....	620	1720
Lime and sand—oil and gas.....	20	1740
White lime .....	80	1820
Lime and sand .....	65	1885
Sand—oil .....	60	1945
Lime .....	160	2105

## LOG No. 505.

**J. E. COOPER FARM.**  
7 miles south of Webbville.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Blue shale .....	325	325
Lime .....	15	340
Shale .....	120	460
White sand .....	5	465
Shale .....	120	585
Sand .....	15	600
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big Lime" .....	150	750
Light shale .....	350	1100
Dark shale .....	50	1150
Sand .....	130	1280
Dark shale (Devonian?) .....	455	1735
White shale .....	105	1840
Sand .....	80	1920
Base of Mississippian indefinite.		

## LOG No. 506.

**HORSFORD WELL.**  
1½ miles above mouth of Big Blaine.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and shales (Pottsville) .....	1025	1025
<b>MISSISSIPPIAN SYSTEM.</b>		
Big lime .....	140	1165
Waverly .....	535	1700
Berea shale (Sunbury) .....	27	1727
Berca grit—gas .....	60	1787
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	53	1840

## LOG No. 507.

**WELL AT MOUTH OF BIG BLAINE.**

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	20	20
Sand .....	60	80
Gray shale and red .....	35	115
Sand .....	195	310
Brown shale .....	45	355
Sand .....	60	415
Black slate .....	15	430

**DRILLED WELLS—LAWRENCE COUNTY**

**413**

<b>Sand .....</b>	<b>110</b>	<b>540</b>
<b>Gray shale .....</b>	<b>50</b>	<b>590</b>
<b>Black shale .....</b>	<b>20</b>	<b>610</b>
<b>Sand—Gas and salt water .....</b>	<b>125</b>	<b>735</b>
<b>Black slate .....</b>	<b>30</b>	<b>765</b>
<b>Sand—Gas and salt water .....</b>	<b>95</b>	<b>860</b>
<b>Black shale .....</b>	<b>10</b>	<b>870</b>
<b>White Conglomerate sand (base of Potts- ville) .....</b>	<b>365</b>	<b>1235</b>
<b>MISSISSIPPIAN SYSTEM.</b>		
<b>Green sand (big lime missing).....</b>	<b>5</b>	<b>1240</b>
<b>Slate shells (Waverly) .....</b>	<b>410</b>	<b>1650</b>
<b>Black slate (Sunbury) .....</b>	<b>10</b>	<b>1660</b>
<b>Sand (Berea Grit)—Gas .....</b>	<b>2</b>	<b>1662</b>
<b>Sand and shells.....</b>	<b>15</b>	<b>1677</b>
<b>Sand and shales .....</b>	<b>65</b>	<b>1742</b>
<b>Black slate .....</b>	<b>5</b>	<b>1747</b>
<b>Sand and shells .....</b>	<b>5</b>	<b>1752</b>
<b>DEVONIAN SYSTEM.</b>		
<b>Black slate .....</b>	<b>648</b>	<b>2400</b>
<b>Light gray slate .....</b>	<b>192</b>	<b>2592</b>
<b>Lime .....</b>	<b>5</b>	<b>2597</b>

**LOG No. 508.**

**J. W. CARTER FARM.  
Big Blaine Creek—1 mile above Fallsburg.**

<b>Strata</b>	<b>Thickness</b>	<b>Depth</b>
<b>PENNSYLVANIAN SYSTEM.</b>		
<b>Gravel .....</b>	<b>30</b>	<b>30</b>
<b>Slate .....</b>	<b>30</b>	<b>60</b>
<b>Sand .....</b>	<b>15</b>	<b>75</b>
<b>Slate .....</b>	<b>100</b>	<b>175</b>
<b>Sand .....</b>	<b>35</b>	<b>210</b>
<b>Slate .....</b>	<b>20</b>	<b>230</b>
<b>Gas sand .....</b>	<b>70</b>	<b>300</b>
<b>Slate .....</b>	<b>30</b>	<b>330</b>
<b>Oil sand .....</b>	<b>20</b>	<b>350</b>
<b>Slate .....</b>	<b>80</b>	<b>430</b>
<b>Sand .....</b>	<b>30</b>	<b>460</b>
<b>Slate .....</b>	<b>20</b>	<b>480</b>
<b>Sand .....</b>	<b>60</b>	<b>540</b>
<b>Slate .....</b>	<b>85</b>	<b>625</b>
<b>Salt sand .....</b>	<b>50</b>	<b>675</b>
<b>Slate .....</b>	<b>45</b>	<b>720</b>
<b>Sand .....</b>	<b>20</b>	<b>740</b>
<b>Slate .....</b>	<b>40</b>	<b>780</b>

Sand .....	20	800
Slate .....	10	810
Sand .....	50	860
Slate .....	20	880
Sand .....	15	895
Slate .....	15	910
Sand .....	10	920
MISSISSIPPIAN SYSTEM.		
"Big lime" .....	55	975
"Big Injun"* .....	142	1117
"Berea"* —oil .....	471	1588
*Driller's names.		

LOG No. 509.

**MILLER FARM.**  
**Lick Creek.**

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	5	5
Sand .....	15	20
Slate .....	30	50
Coal .....	3	53
Sand .....	50	103
Slate .....	422	525
Sand .....	145	670
Slate .....	70	740
Sand (Pottsville) .....	185	925
MISSISSIPPIAN SYSTEM.		
Slate .....	15	940
"Big Lime" .....	190	1130
Waverly shale .....	499	1629
Sand .....	40	1669
Shelly slate .....	12	1681

**LEE COUNTY.**

LOG No. 510.

**WELL AT TALLEGA.**

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Coal measures sand and shale .....	365	365
MISSISSIPPIAN SYSTEM.		
"Big lime" .....	175	540
Waverly .....	515	1055
DEVONIAN SYSTEM.		
Devonian shales .....	181	1236
Lime—oil show .....	27	1263

# DRILLED WELLS—LEE COUNTY

415

LOG No. 511.

## CABLE WELL. 1 mile S. E. of Fincastle.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	4	4
Sand .....	101	105
<b>MISSISSIPPIAN SYSTEM.</b>		
Slate .....	83	188
Lime and slate .....	152	340
Sand .....	20	360
Lime .....	81	441
Sand .....	15	456
Lime .....	24	480
Slate .....	115	595
Brown slate .....	5	600
Shaly slate .....	365	965
<b>DEVONIAN SYSTEM.</b>		
Brown shale } .....	175	1140
Blue shale } .....	12	1152
Brown shale } (Devonian) .....	7	1159
Blue shale } .....	5	1164
Cap rock .....	18	1182
Oil sand—oil show at 1182 and 1238.....	88	1270

LOG No. 512.

## SHOEMAKER WELL. 1½ miles S. E. of Fincastle.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	3	3
Sand .....	121	124
Slate .....	9	133
Shale .....	75	208
Sand .....	92	300
<b>MISSISSIPPIAN SYSTEM.</b>		
Slate .....	75	375
Lime—"Big lime" .....	108	483
Slate and shale (Waverly) .....	499	982
<b>DEVONIAN SYSTEM.</b>		
Brown shale } .....	178	1160
Blue shale } (Devonian) .....	5	1165
Brown shale } .....	8	1173
Cap rock—salt water at 1187.....	14	1187
Black lime .....	39	1226
Lime—oil show .....	9	1235

# 411 OIL AND GAS RESOURCES OF KENTUCKY

## LOG No. 513. CHARLES HARRIS FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	27	27
Gray shale .....	190	217
DEVONIAN SYSTEM.		
Black shale .....	125	342
White shale } (Devonian) .....	6	348
Black shale .....	8	356
Lime-salt water .....	75	431

## LOG No. 514. EPH ANGEL FARM. Big Sinking Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	15	15
Lime .....	140	155
Blue sha'e .....	30	185
Lime .....	20	205
Slate .....	10	215
Lime .....	5	220
Slate .....	85	305
Lime .....	5	310
Shale .....	100	410
Lime .....	4	414
Slate .....	80	494
Lime .....	6	500
Slate .....	100	600
Red rock .....	10	610
Slate .....	45	655
DEVONIAN SYSTEM.		
Shale .....	120	775
Fire clay } (Devonian) ..	15	790
Shale .....	10	800
Oil sand—oil at 800 .....	11	811

## LOG No. 515. DAN FAILEY FARM. Heil Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	6	6
Slate .....	23	29
Sand and shells .....	1	30
Slate .....	20	50
Sand .....	85	135
Slate .....	10	145
Coal .....	5	150
Slate .....	75	225

## 417

Shell and slate.....	135	360
Black lime .....	125	485
Slate .....	40	525
Gray lime .....	75	600
Slate .....	368	968

<b>Black shale</b>	} (Devonian)	.....	<b>122</b>	<b>1090</b>
<b>Slate</b>		.....	<b>65</b>	<b>1155</b>
<b>Black shale</b>		.....	<b>13</b>	<b>1168</b>
<b>Black lime</b>		.....	<b>2</b>	<b>1170</b>
<b>Gray sand (lime?)</b>		.....	<b>10</b>	<b>1180</b>

**½ mile West of Cressmont.**

## EUREKA WELL—No. 1.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Shale .....	60	60
Sand (base of Pottsville) .....	270	330
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime—"Little lime" .....	15	345
Shale .....	15	360
Lime—"Big lime" .....	140	500
Shale .....	30	530
Lime .....	15	545
Shale .....	440	985

DEVONIAN SYSTEM.

Black shale .....	152	1137
"Fire clay" (shale) .....	13	1150
Lime .....	22	1172
"Oil sand"—oil .....	16	1188

LOG No 518.

EUREKA WELL—No. 2.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand (base of Pottsville) .....	15	15
MISSISSIPPIAN SYSTEM.		
Lime—"Little lime" .....	15	30
Slate .....	15	45
Lime—"Big lime" .....	130	175
Green slate .....	29	204
Slate .....	446	650
DEVONIAN SYSTEM.		
Black shale .....	140	790
"Fire clay" (shale) .....	15	805
Lime .....	20	825
"Oil sand"—oil .....	21	846

LOG No. 519.

EUREKA WELL—No. 9.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand .....	90	90
Slate .....	180	270
MISSISSIPPIAN SYSTEM.		
Lime .....	15	285
Slate .....	15	300
Lime .....	130	430
Slate .....	20	450
Lime .....	10	460
Slate .....	470	930
DEVONIAN SYSTEM.		
Black shale .....	135	1065
"Fire clay" (Shale) .....	15	1080
Lime .....	58	1138
"Oil sand" .....	65	1203

# DRILLED WELLS—LEE COUNTY

419

LOG No. 520.

EUREKA WELL—No. 10.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and gravel .....	60	60
<b>MISSISSIPPIAN SYSTEM.</b>		
Black shale .....	85	145
Lime .....	135	280
Slate and shells.....	500	780
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	142	922
White shale .....	10	932
Lime .....	18	950
"Oil sand" .....	16	966

LOG No. 521.

THOMAS BURKHART FARM.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	15	15
Sand and shale .....	150	165
<b>MISSISSIPPIAN SYSTEM.</b>		
Sandy lime .....	35	200
"Big lime" .....	126	326
Green slate .....	15	341
White slate .....	23	364
Blue slate .....	467	841
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	139	980
White shale .....	22	1002
Lime—oil show .....	91	1093

LOG No. 522.

R. J. McLIN FARM—No. 3.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	20	20
Sand .....	100	120
Slate .....	10	130
Sand .....	70	200
<b>MISSISSIPPIAN SYSTEM.</b>		
Slate and shale.....	143	343
Lime .....	95	438
Green slate .....	32	470
Lime .....	10	480
White slate .....	460	940
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	155	1095
White slate .....	13	1108
Lime—oil at 1118 .....		1163

LOG No. 523.

R. J. McLIN FARM—No. 4.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	20	20
Sand .....	100	120
MISSISSIPPIAN SYSTEM.		
Slate .....	130	250
Lime .....	95	345
Slate .....	21	366
Lime .....	20	386
Blue slate .....	439	825
DEVONIAN SYSTEM.		
Brown shale .....	155	980
Green slate .....	42	1022
Lime .....	91	1113

LEWIS COUNTY.

LOG No. 524.

ESHAM FARM.  
Briery Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Red gravel .....	8	8
Sandstone .....	9	17
White slate .....	38	55
Black slate .....	47	102
Fire clay .....	13	115
Black slate .....	13	128
White slate .....	2	130
DEVONIAN SYSTEM.		
Black shale .....	102	232
Fire clay .....	8	240
Black shale and slate.....	60	300
White slate; showing of oil, gas, salt water—8 bairers to a screw and increasing .....	5	305
Black lime sand; water increased from 306 to 326, no oil or gas below 306.....	5	310
Light lime sand; no oil, gas or water.....	35	345
Black lime .....	10	355
Black slate .....	3	358

# DRILLED WELLS—LINCOLN COUNTY

421

LOG No. 525.

HAMILTON FARM—No. 1.

Mouth of Mosby Creek.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Drift .....	5	5
Sandy clay .....	49	54
Sandy shale .....	71	125
<b>DEVONIAN SYSTEM.</b>		
Black slate .....	195	320
Fire clay .....	10	330
Black slate .....	80	410
<b>SILURIAN SYSTEM.</b>		
Blue lime .....	107	517
Sand .....	35	552
Fire clay .....	12	564
Red shale .....	23	587
Sand .....	3	590
Red shale .....	55	645
White slate .....	35	680
Red shale .....	5	685
White slate .....	15	700
<b>ORDOVICIAN SYSTEM.</b>		
Lime .....	10	710
White slate .....	35	745
Lime .....	20	765
Sand .....	5	770
White slate .....	230	1000
Mixed lime .....	771	1771
Pencil cave .....	12	1783
Hard lime .....	219	2002

## LINCOLN COUNTY.

LOG No. 526.

K. DUNAGAN FARM.

Buck Creek.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	7	7
Cherty lime .....	137	144
<b>DEVONIAN SYSTEM.</b>		
Black slate—gas show .....	52	196
"Ragland" sand—oil show .....	8	204
Shale .....	20	224
Sand (?)—oil show .....	2	226
Lime .....	3	229
Sand (?) .....	3	232
Lime .....	7	239
Sand (?) .....	15	254
Lime.		

LOG No. 527.

JOE SCHLACTOR FARM.  
2½ miles S. W. of Junction City.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Back shale .....	42	42
Lime—oil show .....	22	64
Light shale.		

LOG No. 528.

WELL AT KINGS MOUNTAIN.  
Scott Oil & Gas Company, Lessee.  
Dr. C. M. Thompson, No. 1., Lessor.  
J. McGrath, Driller.

Casing Head Elevation, 1185 ft. Surface Elevation, 1185 ft.

Strata	Thickness	Depth
Conductor .....	3	3
MISSISSIPPIAN SYSTEM.		
Cliff Rock .....	10	13
Limestone .....	50	63
Blue slate .....	197	260
DEVONIAN SYSTEM.		
Black shale .....	33	293
Fire clay .....	3	296
Cap rock .....	2	315
Limestone (Onondaga-Corniferous) .....	19	
Total depth .....		315

Remarks:—Struck gas pocket in Waverly on August 6, 1919, at 9:30 a. m., depth 150 ft., gas gave out 10:30 p. m. same date. Reduced hole from 8 to 6¼ inches at 179 feet. Did not drill all the way through oil sands.

LOGAN COUNTY.

LOG No. 529.

WELL AT DIAMOND SPRINGS.

Strata	Thickness	Depth
Soil .....	24	24
MISSISSIPPIAN SYSTEM.		
Shale .....	76	100
Sand .....	25	125
Slate .....	35	160
Lime .....	35	195
Slate .....	30	225
Sand .....	20	245
Shale .....	110	355
Sand .....	30	385
Shale .....	11	396

# DRILLED WELLS—MAGOFFIN COUNTY

423

Lime .....	124	520
Sand—oil show .....	20	540
Slate .....	60	600
Sand—oil show .....	28	628
Hard lime .....	672	1300

Well starts nearly at top of the Chester and the sandstone at 600—628 is probably the Cypress. Well did not go deep enough to reach the Devonian shale.

LOG No. 530.

## WELL AT RUSSELLVILLE.

(Partial record).

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
"Blue-Lick" water .....	at	744
DEVONIAN SYSTEM.		
Shale (Devonian?) .....	910 to	1010
Heavy oil .....	at	1291
"Marble" (white lime) .....	1291 to	1411
Dark pebbly rock .....	1411 to	1854
Base of Devonian indefinite.		

## MAGOFFIN COUNTY.

LOG No. 531.

### TRIPLETT—No. 1.

Pricey Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	14	14
Sand .....	31	45
Slate .....	95	140
Sand .....	75	215
Slate .....	10	225
Sand .....	90	315
Coal .....	3	318
Sand (base of Pottsville) .....	12	330
MISSISSIPPIAN SYSTEM.		
Lime shells .....	80	410
Slate .....	15	425
"Little lime" .....	20	445
Sand .....	10	455
Slate .....	15	470
Slate and lime shells .....	80	550
"Big lime"—cased at 665 .....	185	735
Waverly shale .....	335	1070
Brown shale—(Sunbury) .....	15	1085
"Berea Grit"—oil show .....	10	1095
Slate break .....	5	1100
"Berea Grit"—gas show .....	15	1115
White slate and shells.....	70	1185

DEVONIAN SYSTEM.

Black shale .....	320	1505
White slate .....	57	1562
"Clinton sand"* (lime).....	111	1673
(Oil and gas at 1587. Gas at 1605).		
*Driller's convention.		

LOG No. 532.

JAMES ONEY FARM.  
Left Fork of White Oak Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	7	7
Sand .....	43	50
Lime .....	10	60
Sand .....	20	80
Slate .....	136	216
Sand .....	139	355
Slate .....	5	360
Sand .....	65	425
Slate .....	50	475
Sand .....	90	565
Slate (base of Pottsville) .....	5	570

MISSISSIPPIAN SYSTEM.

"Little lime" .....	12	582
Shells and slate .....	28	610
"Big lime" .....	120	730
Light shale .....	438	1168
Black shale (Sunbury).....	18	1186
Berea sand .....	32	1218
Slate and shells .....	22	1240
White slate .....	35	1275

DEVONIAN SYSTEM.

Brown shale	} (Devonian)	163	1438
Lime shell		2	1440
Brown shale		152	1592
White slate .....		29	1621
Lime .....		149	1770
Slate .....		15	1785
Lime .....		20	1805
Slate .....		16	1821

Top of Silurian indefinite.

# DRILLED WELLS—MAGOFFIN COUNTY

425

LOG No. 533.

W. T. PHILLIPS—No. 1.  
White Oak Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay and gravel .....	20	20
Slate .....	20	40
Hard shell (sand?).....	10	50
Slate .....	80	130
"Settling sand" .....	205	335
Slate (base of Pottsville) .....	37	372
<b>MISSISSIPPIAN SYSTEM.</b>		
"Little lime" .....	10	382
Slate and shell.....	33	415
"Big lime" .....	160	575
Waverly shale—cased at 417.....	431	1006
Sand—show of oil and gas .....	14	1020
Black slate (Sunbury) .....	20	1040
Berea Grit .....	10	1050
White slate .....	45	1095
<b>DEVONIAN SYSTEM.</b>		
Black slate .....	262	1357
White shale .....	23	1380
"Clinton sand"* (lime)—show of gas in top .....	230	1610
Slate .....	10	1620
Red rock .....	6	1626
*Driller's distinction. Top of Silurian indefinite.		

LOG No. 534.

W. M. KEATON FARM.  
Near Netty P. O.  
Johnson Fork.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	18	18
White slate .....	112	130
Lime shells .....	10	140
Slate .....	220	360
Lime .....	60	420
Sand .....	95	515
Slate .....	115	630
Sand .....	10	640
Black lime (?) .....	15	655
Sand (base of Pottsville) .....	149	804

## MISSISSIPPIAN SYSTEM.

"Little lime"—cased at 804.....	6	810
Slate .....	2	812
"Big lime" .....	123	935
Waverly shale .....	367	1302
Black shale (Sunbury) .....	4	1306
Sand (Berea Grit?) .....	20	1326
White slate .....	14	1340
Sand .....	15	1355
White slate .....	25	1380

## DEVONIAN SYSTEM.

Brown shale .....	298	1678
White slate .....	40	1718
Brown lime—oil show at 1838 .....	120	1838
Gray lime .....	16	1854
Slate .....	3	1857

## SILURIAN SYSTEM.

Brown sand (?)*.....	8	1865
Brown lime .....	50	1915
White sand (?)*.....	70	1985
Sand (?)*.....	2	1987

\*Probably lime

## LOG No. 535.

## A. J. LINDON FARM.

Head of Johnson Fork.

Eastern Gulf Oil Co., Lessee.

Started July 15, 1917—Completed August 31, 1917.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Shelly slate .....	30	40
Lime shell .....	35	75
Slate—coal at 175 .....	100	175
Sand .....	25	200
Slate .....	100	300
Sand .....	15	315
Slate .....	35	350
Sand .....	5	355
Slate .....	5	360
Sand .....	110	470
Slate .....	105	575
Lime shells .....	20	595
Sand .....	75	670
Slate .....	60	730
Sand (base of Pottsville) .....	33	763

MISSISSIPPIAN SYSTEM.

"Little lime" .....	5	768
Slate .....	10	778
"Big lime" .....	114	892
Waverly shale .....	434	1326
Black shale (Sunbury) .....	5	1331
Berea Grit .....	20	1351
White slate .....	25	1376

DEVONIAN SYSTEM.

Brown shale .....	319	1695
White slate .....	30	1725
Lime (Ragland sand?) .....	60	1785

LOG No. 536.

Near Hendricks P. O. on Middle Fork of Licking River.

Harris Arnett, Lessor; L. H. Gormley, Lessee.

Strata	Thickness	Depth
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PENNSYLVANIAN SYSTEM.

Soil .....	40	40
Black slate .....	260	300
Gray sand .....	85	385
Black slate .....	75	460
Shelly slate .....	25	485
White lime (?) .....	40	525
White sand (base of Pottsville) .....	190	715

MISSISSIPPIAN SYSTEM.

Gray lime—"Big lime" .....	210	925
Dark slate .....	245	1170
Shelly sand .....	20	1190
Gray sand .....	100	1290
Shelly slate .....	100	1390

DEVONIAN SYSTEM.

Black slate .....	400	1790
Lime .....	290	2080
Bastard gray sand .....	50	2130
Slate and red shale .....	77	2207

LOG No. 745.

F. M. BLANTON—No. 2.

Bed Rock Oil Co. Well, on F. M. Blanton Farm on Big Branch of  
Ticklick Branch of Mine Fork of Little Paint Creek,  
in Magoffin County.

Elevation Surface 960 A. T.

Strata

PENNSYLVANIAN SYSTEM.

Drift .....	0	6	feet
Slate .....	6	27	
Coal .....	27	28	
Slate .....	28	39	
Gray sand .....	39	90	
White sand .....	90	170	
White sand .....	170	235	Fresh water and strong show of oil.
Gray shale and slate.....	235	342	
White sand .....	342	395	
Shale and gray sand .....	395	405	

MISSISSIPPIAN SYSTEM.

White sand .....	405	410	
Gray sand and lime .....	410	420	
Green shale .....	420	430	
Sand and blue shale ....	430	449	
White lime—Big Lime..	449	510	Big Lime—460 ft. of casing.
Gray and blue shale.....	510	614	
Limy sand .....	614	775	
Gray sand .....	775	817	Weir. Gas from top to bottom. 987,000 cu. ft.
Black shale—Sunbury....	817	832	of gas.

Time of drilling 8 days. Drilled by E. F. Henry.

LOG No. 746.

F. M. BLANTON—No. 3.

Bed Rock Oil Co., on Big Branch of Ticklick Branch of Mine Fork in  
Magoffin County.

Elevation Surface 1025 ft.

Strata

PENNSYLVANIAN SYSTEM.

Drift .....	0	to	24	feet
Slate .....	24		100	
Brown sand .....	100		140	
White sand .....	140		200	
White sand .....	200		300	Fresh water.
Shale and slate .....	300		424	
Brown sand .....	424		435	
Brown sand .....	435		460	

MISSISSIPPIAN SYSTEM.

Gray shale .....	460	475	
Blue shale and lime....	475	505	
Blue shale .....	505	525	
White lime .....	525	600	Big Lime casing set at 538.
Green sand and sha'es..	600	869	
Light gray sand .....	869	915	Weir sand gas. Later properly gauged and found to be over 2,000,000.
Black sha'e.....	915	949	

Driller, E. F. Henry.

LOG No. 747.

Bed Rock Oil Co's. J. C. Cantrill No. 1, on Ticklick Branch of Mine Fork, in Magoffin County.

Elevation Surface 955 A. T.

Strata

PENNSYLVANIAN SYSTEM.

Drift .....	0	to	15	feet
Sand stone .....	15		100	
Sand and shales .....	100		200	
Sandstone .....	200		310	
Sandstone .....	310		312	
Blue Clay .....	312		325	
White sandstone .....	325		373	

MISSISSIPPIAN SYSTEM.

Blue clay .....	373	375	
Shelly lime and shales	375	417	
Blue Clay.....	417	426	
White lime .....	426	504	Big Lime casing set at 440.
Gray shales .....	504	712	
Sandy lime .....	712	740	About 50,000 cu. ft. gas.
Black shale .....	740	750	
Gray sand .....	750	788	Weir sand gas from top to bottom. 850,000 cu. ft.
Sandy shales .....	788	819	

Rock Pressure 285.

LOG No. 748.

Bed Rock Oil Co's. Boyd Conley No. 1, on Ticklick Branch of Mine Fork in Magoffin County.

Elevation Surface 905 ft.

Strata

PENNSYLVANIAN SYSTEM.

Drift and sand .....	0	to	50	
Sandstone .....	50		190	
Coarse white sand .....	190		270	Fresh water at 200.
White sand .....	270		340	

MISSISSIPPIAN SYSTEM.

Blue clay with sandy breaks .....	340	365	
White lime .....	365	485	Big Lime cased at 400.
Brown shales .....	485	640	
Slate .....	645	650	
Sandy lime .....	650	665	Some gas.
Green shale .....	665	700	
Gray sand .....	700	731	175,000 cu. ft. gas.
Black shale .....	731	743	
Gray sand .....	743	769	555,000 cu. ft. gas.
Rock Pressure 285.			

LOG No. 749.  
Harris Howard No. 1, Bed Rock Oil Co., Lessee; Meadow Branch of  
Licking River, just above the forks of the Branch up the  
Right Fork.  
Elevation Surface about 940 ft.

Strata

PENNSYLVANIAN SYSTEM.

Drift .....	0	26	feet
Shale .....	26	60	
Coal .....	60	63	
Sand .....	63	167	
Coal .....	167	170	
Sand .....	170	185	
Sand—black oil .....	185	195	
Sand .....	195	275	
Bluish shale .....	275	300	
Sand .....	300	320	
Shales .....	320	475	
Sand with gas .....	475	500	
White sand—show of oil	500	550	
Sand—salt water .....	550	570	

MISSISSIPPIAN SYSTEM.

Shale .....	570	740	
White lime .....	740	835	Big Lime 8¼ set at 800
Shales .....	835	1160	
Sand .....	1160	1250	Weir sand. Salt water at 1170. Rose 900 feet in hole.
Sandy lime .....	1250	1310	
Black shale—soft .....	1310	1350	Sunbury shale.
Yellow hard shale .....	1350	1390	Berea Formation.

DEVONIAN SYSTEM.

Black shale .....	1390	1750	
Gray shale .....	1750	1865	
Gray lime .....	1865	1955	Corniferous. 100,000 cu. ft. of gas.

## MARTIN COUNTY.

LOG No. 537.

## JACK CASSIDAY FARM.

Hardin Branch of Coldwater Fork of Rockcastle Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	24	24
Gray sand .....	88	112
Light slate.....	12	124
White sand .....	18	142
Light slate .....	40	182
Gray sand .....	3	185
Black slate .....	5	190
Gray sand .....	76	266
Black slate .....	8	274
Gray sand .....	13	287
Light slate .....	30	317
Black slate .....	87	404
Dark sand—gas .....	15	419
Black slate .....	56	475
White sand—salt water .....	93	568
Black slate .....	5	573
Gray and white sand .....	69	642
Black slate .....	7	649
Gray sand .....	60	709
Black slate .....	2	711
Gray sand .....	24	735
Black slate .....	3	738
White sand .....	164	902
Black slate .....	53	955
Gray sand .....	4	959
Dark slate .....	33	992
Limy sand .....	6	998
Light slate .....	4	1002
White sand (base of Pottsville) .....	14	1016
<b>MISSISSIPPIAN SYSTEM.</b>		
Light slate .....	34	1050
Dark lime .....	8	1058
Red shale .....	53	1111
Light slate .....	8	1119
White sand .....	26	1145
Black slate .....	30	1190
Dark lime—gas at 1340.....	200	1390
Sandy slate .....	12	1402
Red shale .....	27	1429
Dark slate .....	445	1874
Black slate (Sunbury?) .....	18	1892

Gray, limy sand (Berea?) .....	27	1919
Light slate .....	20	1939
Dark slate .....	32	1971
DEVONIAN SYSTEM.		
Brown slate } (Devonian) .....	10	1981
Dark slate } .....	24	2005

LOG No. 538.

J. M. STEPP FARM.  
Wolf Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift .....	18	18
Sand .....	12	30
Coal .....	2	32
Slate .....	12	44
Sand .....	55	99
Light slate .....	10	109
White sand .....	40	149
Light slate .....	5	154
White sand .....	56	210
Coal .....	2	212
Light slate .....	105	317
Sand .....	8	325
Coal .....	2	327
White sand .....	10	337
Light slate .....	20	357
White sand .....	12	369
Black slate .....	20	389
White slate .....	40	429
White sand .....	21	450
Light slate .....	50	500
White sand .....	24	524
Black slate .....	25	549
White sand .....	30	579
Light slate .....	24	603
Gray sand .....	24	627
Light slate .....	25	652
White sand .....	48	700
Dark slate .....	40	740
White sand .....	15	755
Sandy slate .....	20	775
Gray sand .....	25	800
Black slate .....	10	810
White sand .....	100	910
Coal .....	3	913
Light slate .....	6	919

# DRILLED WELLS—MARTIN COUNTY

433

Sand .....	37	956
Slate .....	28	984
Sand .....	139	1123
Black slate (base of Pottsville) .....	20	1143

## MISSISSIPPIAN SYSTEM.

Red shale .....	6	1149
Light sand .....	100	1249
Dark slate .....	18	1267
Red shale .....	36	1303
"Big lime"—Oil at 1320—Gas at 1400.....	217	1520
Blue slate .....	33	1533

LOG No. 539.

## SAM MUNSEY FARM. Big Branch of Wolf Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		

Soil .....	56	56
Light slate .....	24	80
Gray sand .....	35	115
Light sate .....	23	138
Dark sand .....	37	175
Dark slate .....	18	193
Coal .....	2	195
Dark slate .....	15	210
Coal .....	4	214
Shelly slate .....	248	462
Light sand .....	16	478
Shelly slate .....	167	645
Gray sand .....	45	690
Dark slate .....	8	698
Sand .....	135	833
Coal .....	3	836
Dark sand .....	29	865
Dark slate .....	28	893
White sand—black oil (Pottsville) .....	79	972

## MISSISSIPPIAN SYSTEM.

Shelly slate .....	38	1010
Red shale .....	15	1025
Black sand .....	14	1039
Black slate .....	6	1045
Red shale .....	10	1055
Black slate .....	18	1073

Red shale .....	78	1151
Dark sand—Gas .....	12	1163
Dark slate .....	30	1193
Gray sand .....	36	1229
Black slate .....	6	1235
Lime—"Big lime" .....	175	1410
Dark sand .....	10	1420
Sandy slate .....	16	1436
Black slate .....	6	1442
Dark sand .....	15	1457
Dark slate .....	78	1535
Black slate .....	4	1539

LOG No. 540.

WARFIELD WELL.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	32	32
Sand .....	11	43
Coal .....	7	50
Sand .....	97	147
Coal .....	3	150
White sand .....	50	200
Shale—Salt water .....	75	275
Sand .....	20	295
Shale .....	214	509
Sand .....	71	580
Missing .....	13	593
Sand—Oil show .....	88	681
Shale .....	18	699
Sand .....	51	750
Shale .....	200	950
Pebbly sand—Oil and gas .....	50	1000
White and blue shales .....	200	1200
Coarse pebbly sand .....	10	1210
MISSISSIPPIAN SYSTEM.		
Shells .....	90	1300
Sandy lime—Gas .....	7	1307
(Irregular Record).		

# DRILLED WELLS—MARTIN COUNTY

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LOG. No. 541. YORK AND RATLIFF WELL.  
2 miles above Warfield.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil and gravel .....	55	55
Slate .....	55	110
Sand .....	30	140
Slate and sand .....	75	215
Coal .....	2	217
Slate .....	13	230
Coal .....	6	236
Slate .....	90	326
Sand .....	40	366
Slate and shells .....	284	650
Sand—Salt water .....	225	875
MISSISSIPPIAN SYSTEM.		
Slate .....	165	1040
Slate and red rock .....	60	1100
Green slate and red rock .....	120	1220
Sand .....	15	1235
Blue slate and red rock .....	28	1263
Red rock .....	10	1273
Black slate .....	20	1293
Dark shale .....	20	1313
"Little lime" .....	8	1321
"Pencil cave" .....	9	1330
"Big lime"—gas at 1486 .....	169	1499
Gas well		

LOG No. 542. THOS. KIRK FARM.  
3 miles above Warfield.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	30	30
Sand .....	55	85
Slate .....	55	140
Coal .....	5	145
Slate .....	105	250
Sand .....	50	300
MISSISSIPPIAN SYSTEM.		
Slate .....	260	560
Sand—Salt water .....	220	780
Slate and shells.....	120	900
Sand .....	50	950
Slate and shells .....	20	970
Red rock .....	20	990
Green slate .....	32	1022
Lime .....	18	1040

Red rock .....	15	1055
Blue slate .....	20	1075
Lime shells and red rock .....	50	1125
Shells and slate .....	50	1175
Slate .....	25	1200
"Big lime" .....	170	1370
Slate .....	5	1375
Sand .....	65	1440
Slate .....	35	1475
Sand .....	40	1515
White slate .....	375	1890
DEVONIAN SYSTEM.		
Black shale (Devonian?) .....	64	1954

McLEAN COUNTY.

LOG No. 543.                      T. C. MARTIN FARM.  
   Livermore.

Strata	(Partial record).		
PENNSYLVANIAN SYSTEM.			Feet
White sand—Oil show .....		at	130
White shale .....		"	140
Light gray shale .....		"	275
MISSISSIPPIAN SYSTEM.			
Gray lime .....		"	300
White sand—oil show .....		"	309
Gray lime .....		"	443
Gray shale .....		"	595
Gray shale .....		"	700
Dark gray sand .....		"	800
Gray shale .....		"	865
Dark gray lime .....		"	895
Very dark lime .....		"	1165
Gray sand .....		"	1540
Dove-colored lime .....		"	1760
Dark shale .....		"	1800
Gray lime .....		"	1906
Gray sand .....		"	2010
Dark sandy shale—oil show .....		"	2020
Brown sand .....		"	2080
Dark shale—Oil show (Devonian) .....		"	2420
Dove colored lime .....		"	2500
Dark shale .....		"	2600
Dark calcareous sand .....		"	2670
Dark shale .....		"	2715
Black shale .....		"	2800
Dark shale .....		"	3000
Gray lime .....	3025	to	3241
(Poorly kept record).			

MEADE COUNTY.

LOG No. 544.

HARRINGTON FARM.  
Doe Run.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	8	8
Lime .....	232	240
Limy shale .....	300	540
White shale .....	90	630
DEVONIAN SYSTEM.		
Black shale—gas .....	60	690
Lime—Oil show at 940. Salt water at 780 and 878 .....	460	1150
Shaly lime .....	255	1405
Top of Silurian indefinite.		

MENIFEE COUNTY.

LOG No. 545.

G. W. GAY FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Blue clay .....	10	15
White shale .....	90	105
Blue shale .....	50	155
Gray lime .....	10	165
White shale .....	3	168
Soft blue shale .....	70	238
Hard blue shale .....	94	332
DEVONIAN SYSTEM.		
Black shale } .....	136	468
White clay } (Devonian) .....	6	474
Brown shale } .....	7	481
Lime—"Ragland sand"—Gas .....	19	500

LOG No. 546.

ELIJAH MYNHIER FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	10	10
Blue shale .....	50	60
Dark lime .....	10	70
Blue shale .....	85	155
Light shale .....	4	159
Dark lime .....	16	175
Shale .....	123	298
Gray lime .....	5	303

## DEVONIAN SYSTEM.

Black shale	} (Devonian)	137	440
Blue shale		12	452
Lime—"Ragland sand"—Gas		26	478

## LOG No. 547.

## G. W. POYNTER FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	6	6
Dark sand .....	144	150
Blue shale .....	220	370
DEVONIAN SYSTEM.		
Black shale } (Devonian) .....	150	520
Blue shale } .....	8	528
Lime—"Ragland sand"—gas at 530 and 542 to 563 .....	35	563
Blue shale .....	2	565

## LOG No. 548.

## G. W. POYNTER FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	7	7
Dark sand .....	79	86
Shale .....	327	413
DEVONIAN SYSTEM.		
Black shale } .....	144	557
Blue shale } (Devonian) .....	6	563
Black shale } .....	1	564
Lime—"Ragland sand"—Gas .....	37	601
Blue shale .....	3	604

## LOG No. 549.

## T. E. AMBURGEY FARM.

Strata	Thickness	Depth	
MISSISSIPPIAN SYSTEM.			
Clay .....	23	23	
Sand .....	222	245	
Shale .....	225	470	
Gray lime .....	5	475	
Blue shale .....	10	485	
DEVONIAN SYSTEM.			
Black shale	} (Devonian) .....	165	650
Blue shale		5	655
Lime—"Ragland sand"—Gas .....	45	700	

LOG No. 550.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	5	5
Dark shale .....	15	20
Sand .....	30	50
Dark shale .....	267	317
Light shale .....	9	326
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	40	366
Brown shale (Devonian) .....	102	468
Blue shale ..	5	473
Lime—"Ragland sand"—Gas .....	26	499
Blue shale .....	4	503

LOG No. 551.

W. F. FITZPATRICK FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	6	6
Blue shale .....	30	36
Sand .....	8	44
Blue shale .....	263	307
Gray lime .....	8	315
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	143	458
Blue shale (Devonian) .....	8	466
Lime—"Ragland sand"—gas .....	28	494
Blue shale .....	19	513

LOG No. 552.

G. W. MILLER FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	9	9
Sand .....	176	185
Blue shale .....	236	421
Dark lime .....	22	443
<b>DEVONIAN SYSTEM.</b>		
Black shale } (Devonian) .....	144	587
Blue shale }	8	595
Lime—"Ragland sand"—Gas .....	26	621
Blue shale .....	7	628

LOG No. 553.

JOHN FEERAFT FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	7	7
Dark sand .....	61	68
Blue shale .....	4	72
Dark sand .....	21	93
Blue shale .....	1	94
Dark sand .....	6	100
Blue shale .....	45	145
Dark sand .....	3	148
Blue shale .....	12	160
Dark sand .....	10	170
Blue shale .....	13	183
Dark sand .....	11	194
Blue shale .....	318	512
Gray lime .....	2	514
Blue shale .....	6	520
Gray lime .....	2	522
Blue shale .....	8	530
Black shale .....	6	536
Blue shale .....	9	545
DEVONIAN SYSTEM.		
Black shale ..	98	643
Brown shale } (Devonian) .....	58	701
Blue shale ... }	9	710
Lime—"Ragland sand"—Gas .....	36	746
Blue shale .....	5	751
Gray lime .....	5	756
SILURIAN SYSTEM.		
Blue shale .....	68	824

LOG No. 554.

JACK BARNETT FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	10	10
Sand .....	130	140
Blue shale .....	140	280
Dark lime .....	5	285
Blue shale .....	13	298
Dark lime .....	4	302
Blue shale .....	145	447
Gray lime .....	2	449

DEVONIAN SYSTEM.

Black shale	.....	91	540
Brown shale	.....	43	583
Blue shale	(Devonian) .....	12	595
Brown shale	.....	8	603
Blue shale	.....	5	608
Lime—"Ragland sand"—Gas	.....	12	620

SILURIAN SYSTEM.

Blue shale	.....	153	773
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LOG No. 555.

CATHERINE TABOR FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay	.....	9
Sand	.....	390
Yellow lime	.....	392
Sand	.....	490
Yellow lime	.....	492
Blue shale	.....	517
DEVONIAN SYSTEM.		
Black shale . }	(Devonian) ..... 153	670
Blue shale . {	..... 10	680
Lime—"Ragland sand"—Gas	..... 23	703
SILURIAN SYSTEM.		
Blue shale	.....	710

LOG No. 556.

HULDA COLDIRON FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay	.....	7
Dark sand	.....	20
Blue shale	.....	23
Dark sand	.....	28
Blue shale	.....	33
Dark sand	.....	38
Blue shale	.....	42
Dark sand	.....	51
Blue shale	.....	64
Dark sand	.....	70
Blue shale	.....	95
Dark sand	.....	120
Blue shale	.....	430
Gray lime	.....	432
Blue shale	.....	436

DEVONIAN SYSTEM.

Black shale	.....	24	460
Blue shale ....	(Devonian) .....	6	466
Brown shale	Shale gas at 500. ....	137	603
Blue shale ..	.....	4	607
Lime—"Ragland sand"—Gas	.....	26	633

SILURIAN SYSTEM.

Blue shale	.....	2	635
Lime	.....	20	655
Blue shale	.....	2	657
Lime	.....	3	660
Blue shale	.....	1	661
Lime	.....	6	667
Blue shale	.....	2	669
Lime	.....	3	672
Blue shale	.....	4	676

LOG No. 557.

J. M. ADAMS FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay	7	7
Sand	47	54
Blue shale	288	342
Gray lime	3	345
DEVONIAN SYSTEM.		
Black shale	160	505
Blue shale ..	(Devonian) ..... 4	509
Lime—"Ragland sand"—Gas and salt water	26	535
SILURIAN SYSTEM.		
Blue shale	10	545
Gray lime	5	550
Light shale	7	557

LOG No. 558.

EWING HEIRS FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gravel	15	15
Blue shale	325	340
DEVONIAN SYSTEM.		
Black shale (Devonian)	230	570
"Ragland sand"	50	620

SILURIAN SYSTEM.

Lime (?) .....	180	800
Red rock .....	25	825
Lime .....	150	975
White slate .....	25	1000
Blue lime .....	200	1200
Red rock .....	10	1210
White lime .....	300	1510
White sand (?) .....	50	1560
White lime .....	80	1640
Sand (?) .....	20	1660
Lime .....	141	1801

LOG No. 559.            AGNES ROTHWELL FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	4	4
Sand .....	186	190
Dark lime .....	2	192
Blue shale .....	206	398
Blue lime .....	14	412
DEVONIAN SYSTEM.		
Black shale ..	130	542
Blue shale ..	2	544
Black shale } (Devonian) .....	11	555
Brown shale } .....	6	561
Blue shale ..	11	572
Lime—"Ragland sand"—Gas .....	43	615
SILURIAN SYSTEM.		
Shale .....	134	749
Gray lime .....	5	754
Blue shale .....	5	759
Gray lime .....	441	1200

LOG No. 560.            BELLAMY FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	5	5
Blue shale .....	113	118
DEVONIAN SYSTEM.		
Black shale } .....	150	268
Blue shale } (Devonian) .....	62	330
Gray lime .....	15	345
Dark shale .....	38	383
SILURIAN SYSTEM.		
Lime .....	317	700

LOG No. 561.

## DAVIS HAMILTON FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	8	8
Blue shale .....	15	23
Black shale .....	152	175
Light shale .....	35	210
Gray lime .....	3	213
Blue shale .....	2	215
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	143	358
Blue shale .....	64	422
Black shale .....	18	440
<b>SILURIAN SYSTEM.</b>		
Blue shale .....	46	486
Green shale .....	14	500
Yellow flint .....	1	501
Reddish-brown shale .....	8	509
Light green shale .....	3	512
Reddish-brown shale .....	2	514
Gray lime .....	11	525
Blue shale .....	2	527
Gray lime .....	3	530
Blue shale .....	18	548
Gray lime .....	24	572
Pink shale .....	2	574
Gray lime .....	3	577
Light shale .....	8	585
Gray lime .....	3	588
Blue shale .....	2	590
Gray lime .....	4	594
White shale .....	6	600
Blue shale .....	14	614
Lime .....	355	969
Gray slate .....	5	974
Dark lime .....	21	995
Blue slate .....	3	998
Dark lime .....	7	1005

(Ragland sand was missing.)

(Top of Ordovician not defined.)

LOG No. 562.

R. S. INGRAM FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	10	10
Blue shale .....	10	20
Sand .....	30	50
Blue shale .....	48	98
Sand .....	12	110
Gray lime(?) .....	100	210
Blue lime(?) and slate .....	187	397
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	173	570
Lime—"Ragland sand"—Oil show and salt water .....	60	630
<b>SILURIAN SYSTEM.</b>		
Blue shale .....	140	770
Pink shale .....	25	795
Blue lime .....	53	848

LOG No. 563.

J. J. CHAMBERS FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	4	40
Sand .....	176	180
Blue shale .....	92	272
Brown lime .....	2	274
Blue shale .....	51	325
Sand .....	17	342
Blue shale .....	60	402
Sand .....	13	415
Blue shale .....	36	451
Blue lime .....	3	454
Blue shale .....	8	462
<b>DEVONIAN SYSTEM.</b>		
Black shale } (Devonian) .....	138	600
Blue shale } .....	10	610
Lime—"Ragland sand" .....	43	653
<b>SILURIAN SYSTEM.</b>		
Blue shale .....	5	658

LOG No. 564.

J. J. CHAMBERS FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	7	7
Sand .....	113	120
Shale .....	334	454
Lime .....	3	457
DEVONIAN SYSTEM.		
Black shale { (Devonian) .....	156	613
White shale { .....	8	621
Lime—"Ragland sand"—Gas show at 636, Oil show at 646 .....	40	661
Lime .....	34	695
SILURIAN SYSTEM.		
Blue shale .....	13	708

LOG No. 565.

T. F. PAYNTER FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	7	7
Shale .....	403	410
DEVONIAN SYSTEM.		
Black shale { (Devonian) .....	140	550
Light shale .. { .....	7	557
Lime—"Ragland sand"—Gas .....	20	577
Gray shale .....	13	590

LOG No. 567.

SKIDMORE BROTHERS FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	9	9
Sand .....	71	80
Blue shale .....	298	378
DEVONIAN SYSTEM.		
Black shale { (Devonian) .....	156	534
Blue shale .... { .....	6	540
Lime—"Ragland sand" .....	44	584
SILURIAN SYSTEM.		
Blue shale .....	6	590

LOG No. 568.

JOHN P. CROCKETT FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	3	3
Sand .....	5	8
Blue shale .....	7	15
Sand .....	3	18
Blue shale .....	7	25
Sand .....	10	35
Blue shale .....	60	95
Sand .....	11	106
Blue shale .....	254	360
Gray lime .....	2	362
Blue shale .....	53	415
Gray lime .....	5	420
<b>DEVONIAN SYSTEM.</b>		
Black shale } (Devonian) .....	159	579
Blue shale ... }	8	587
Lime—"Ragland sand" .....	55	642

LOG No. 569.

ALEXANDER FARM.

7 miles from Frenchburg.

Casing Head Elevation 725 feet.

Strata	Depth
<b>MISSISSIPPIAN SYSTEM.</b>	
Hard sandstone .....	200
Hard limestone .....	100
Soft shelly sandstone .....	250
Soft Soapstone .....	350
<b>DEVONIAN SYSTEM.</b>	
Black and brown shale .....	175
Fire clay .....	12
Limestone Cap Rock (Corniferous L. S.) .....	2
Oil sands (drilled in) .....	17

LOG No. 570.

JAMES NEAL FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	9	9
Sand .....	16	25
Blue shale .....	5	30
Sand .....	25	55
Blue shale .....	45	100
Sand .....	8	108
Blue shale .....	92	200

Sand .....	20	220
Blue shale .....	20	240
Sand .....	48	288
Blue shale .....	22	310
Sand .....	20	330
Blue shale .....	78	408
Gray lime .....	12	420

## DEVONIAN SYSTEM.

Black shale	} (Devonian)	139	559
Blue shale		6	565
Lime—"Ragland sand" .....		36	601

LOG No. 580.

**J. R. LYON FARM.**  
Head of Blackwater Creek.  
(From drillings).

Strata	Thickness	Depth	
PENNSYLVANIAN SYSTEM.			
Soil .....	17	17	
Sand .....	13	30	
Black shale .....	50	80	
Coal .....	1	81	
Shale .....	19	100	
White sand .....	77	177	
Dark gray sand .....	8	185	
Dark shale .....	12	197	
White sand .....	4	201	
Dark slate .....	6	207	
White sand .....	10	217	
Gray shale (base of Pottsville) .....	78	295	
MISSISSIPPIAN SYSTEM.			
Gray lime—"Big lime".....	47	342	
Greenish shale (top of Waverly) .....	33	375	
Light sand .....	85	460	
Gray shale .....	25	485	
Gray sand .....	280	765	
Gray shale .....	75	840	
Gray lime .....	8	848	
Gray shale .....	32	880	
Gray sand .....	20	900	
DEVONIAN SYSTEM.			
Black shale	} (Devonian)	210	1110
Blue shale		10	1120
Black shale		4	1124
Blue shale		6	1130
Dark shale		4	1134

Gray lime—"Ragland sand" .....	19	1153
Brownish gray lime .....	5	1158
Light brown lime .....	5	1163
Brownish gray lime .....	5	1168
White lime .....	8	1176
Brown lime .....	18	1194

SILURIAN SYSTEM.

Gray lime .....	11	1205
Very dark argillaceous lime .....	5	1210
White lime .....	26	1236
Blue shale (Niagaran) .....	174	1410
Blue shale—streaks of red lime .....	15	1425
Variegated lime .....	36	1461
Gray lime .....	10	1471

ORDOVICIAN SYSTEM.

Blue argillaceous lime .....	29	1500
Mixed white and blue limes .....	135	1635
Gray lime .....	115	1750
Gray and white limes .....	150	1900
White, blue and variegated limes .....	265	2165
Lime and shales mixed.....	225	2390
Lime .....	35	2425
Dove-colored lime mixed with green quartzite—top of Tyrone .....	75	2500
Dark dove-colored lime .....	100	2600
Light dove-colored lime .....	140	2740
Dark dove-colored lime .....	40	2780
Grayish dove-colored lime .....	40	2820
Dark dove-colored lime .....	160	2980
Very dark dove-colored lime .....	85	3065
Grayish dove-colored lime .....	20	3085
Very dark lime .....	30	3115
Light dove-colored lime—green shale at base .....	5	3120
White sandy limestone—gas show—top of Calciferous .....	11	3131

As stated on page 178 the distinction "Devonian" as used in these records opposite the Black Shale does not necessarily mean that all of the Black Shale is Devonian or that all of the Devonian is Black Shale.

In many of the records the upper part of what the driller includes in the name "Black Shale" may belong in the Mississippian while some of the light shales below the Black Shale are Devonian, as is also the "Ragland sand," the latter a limestone.

## MORGAN COUNTY.

LOG No. 582.

CARTER WELL No. 1.

Cannel City.

(Partial record).

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	14	14
To top of "Big Lime" .....	806	820
<b>MISSISSIPPIAN SYSTEM.</b>		
Big Lime—Waverly—oil show at 970.....	460	1280
Brown shale (Sunbury) .....	10	1290
Berea .....	30	1320
Slate .....	20	1340
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	270	1610
Shale .....	31	1641
Lime—oil at 1645 .....	16	1657

LOG No. 583.

TAYLOR DAY WELL No. 1.

Cannel City.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	15	15
Red rock .....	30	45
Sand .....	20	65
Black shale .....	35	100
Bastard lime (?) .....	80	180
Sand .....	45	225
Black slate .....	100	325
White sand .....	75	400
Slate and shells .....	40	440
"Settling" sand .....	80	520
Black slate (base of Pottsville).....	20	540
<b>MISSISSIPPIAN SYSTEM.</b>		
Dark lime .....	30	570
Pencil cave .....	10	580
"Big lime" .....	125	705
White shale .....	50	755
Waverly shale .....	435	1190
Brown shale (Sunbury) .....	35	1225
White shale .....	35	1260
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	286	1546
White shale .....	30	1576
<b>SILURIAN SYSTEM.</b>		
Lime—oil show at 1588.....	175	1751

LOG No. 584.

TAYLOR DAY WELL No. 2.  
Cannel City.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	10	10
Slate .....	131	141
Coal .....	4	145
Slate .....	50	195
Coal .....	2	197
Slate .....	163	360
Sand .....	258	618
Slate .....	35	653
Sand .....	90	743
Slate (base of Pottsville) .....	6	749
<b>MISSISSIPPIAN SYSTEM.</b>		
"Little lime" .....	14	763
Pencil cave .....	5	768
"Big lime" .....	192	960
Lime (?) shells .....	50	1010
Sand .....	20	1030
Shale .....	350	1380
"Berea" .....	30	1410
Lime shells .....	90	1500
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	230	1730
White shale .....	25	1755
Lime—heavy gas at 1758—oil at 1768.....	20	1775

LOG No. 585.

TERRELL WELL No. 1.  
Cannel City.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soll .....	9	9
Slate and shells .....	131	140
Slate .....	30	170
Sand .....	254	424
Slate .....	8	432
Sand .....	78	510
Slate .....	10	520
Shells .....	15	535
Sand .....	85	620
Slate (base of Pottsville) .....	10	630

## MISSISSIPPIAN SYSTEM.

Lime .....	15	645
Slate .....	23	668
"Big lime" .....	132	800
Sand—oil show at 870.....	75	875
Waverly shale—oil show at 930.....	405	1280
Brown shale (Sunbury) .....	10	1290
Berea .....	40	1330

## DEVONIAN SYSTEM.

Brown shale .....	278	1608
White shale .....	30	1638
Lime—oil .....	10	1648

LOG No. 586.

## KENTUCKY BLOCK CANNEL COAL CO. No. 1.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	19	19
Sand and slate .....	17	36
Coal .....	2	38
Sand .....	4	42
Shale .....	9	51
Sand .....	21	72
Sand and slate .....	101	173
Sand .....	27	200
Sandy black shale .....	10	210
Pebble sand .....	20	230
Black slate .....	16	246
White sand—oil show at 285.....	120	366
Sand and shale .....	6	372
White sand .....	74	446
Sand and slate .....	11	457
MISSISSIPPIAN SYSTEM.		
Lime, sand and black slate—oil show at 470 .....	43	500
White sand .....	78	578
Lime .....	34	612
Lime and dark slate .....	34	646
Lime .....	47	693
Green shale .....	122	815
Blue shale .....	84	899
Gray shale .....	329	1228
Black shale (Sunbury?) .....	24	1252
Berea .....	18	1270
Blue shale .....	36	1306
DEVONIAN SYSTEM.		
Black shale .....	268	1574
Gray shale .....	34	1608
Lime—(Ragland sand)—oil .....	1	1609

LOG No. 587.

KENTUCKY BLOCK CANNEL COAL CO. No. 2.  
Cannel City.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and gravel .....	12	12
Slate and shells .....	18	30
Slate .....	170	200
Sand .....	260	460
Slate and lime (?) .....	40	500
"Settling" sand .....	80	580
Slate (base of Pottsville) .....	64	644
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	130	774
Waverly shale .....	456	1230
Brown shale (Sunbury) .....	15	1245
Berea .....	20	1265
Slate .....	45	1310
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	269	1579
White slate .....	32	1611
Lime—oil and gas show at 1616—salt water .....	20	1631

LOG No. 588.

KENTUCKY BLOCK CANNEL COAL CO. No. 3.  
Cannel City.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	17	17
Red rock .....	50	67
Coal .....	2	69
Black slate .....	150	219
Sand .....	200	419
Slate .....	20	439
"Settling" sand .....	100	539
Slate .....	15	554
Sand .....	81	635
Slate (base of Pottsville) .....	15	650
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	170	820
Waverly shale .....	440	1260
Brown shale (Sunbury) .....	10	1270
Berea .....	40	1310
<b>DEVONIAN SYSTEM.</b>		
Brown shale (Devonian) .....	279	1589
White slate .....	30	1619
Lime—strong gas at 1622, oil at 1624.....	13	1632

LOG No. 589.

**SUSAN LYKINS FARM.**  
**Brushy Fork.**

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	12	12
Shale .....	6	18
Sand .....	17	35
Shale—thin coal at 43 .....	102	137
Sand .....	8	145
Shale .....	28	173
Sand .....	152	325
Shale .....	3	328
Sand .....	94	422
White pebble-rock .....	5	427
Sand .....	6	433
Shale .....	4	437
Sand .....	5	442
Sandy shale .....	4	446
Sand .....	84	530
White pebble-rock .....	6	536
Sand (base of Pottsville) .....	25	561
<b>MISSISSIPPIAN SYSTEM.</b>		
"Little lime" .....	4	565
Shale .....	5	570
"Big lime" .....	105	675
"Waverly" .....	525	1200
Black shale (Sunbury) .....	7	1207
Sandy lime .....	35	1242
Blue shale .....	43	1285
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	285	1570
Light shale .....	41	1611
Lime—oil at 1615. Gas at 1645 .....	49	1660

LOG No. 590.

**JESS MORRIS FARM.**  
**Caney Creek.**  
**(From drillings).**

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	15	15
Shale .....	10	25
Sand—gas at 75, 125 and 200.....	235	260
Pebble rock .....	5	265
Sand .....	40	305
Pebble rock .....	13	318
Dark shale and sand .....	12	330

# DRILLED WELLS—MORGAN COUNTY

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Dark shale .....	10	340
Shaly sand .....	5	345
Sand .....	35	380
Pebble rock .....	30	410
Coal .....	1	411
Dark shale (base of Pottsville).....	42	453

## MISSISSIPPIAN SYSTEM.

Lime .....	15	468
Limy shale .....	5	473
Lime—"Big lime" .....	52	525
Sand and shale—oil show at 625.....	235	760
Limy shale .....	5	765
Red sand .....	1	766
Dark blue, sandy shale—gas at 850, 865 and 920 .....	154	920
Fine sand .....	5	925
Shale .....	5	930
Sand—salt water .....	10	940
Dark shale .....	33	973
Sand .....	2	975
Dark shale .....	37	1012
Shale and sand .....	16	1028
Black shale (Sunbury) .....	7	1035
Sand (Berea)—oil at 1052.....	24	1059

## DEVONIAN SYSTEM.

Dark shale and sand .....	28	1087
Black shale, gas and oil at 1145.....	283	1370
Soft blue shale .....	30	1400
Lime—oil and gas at 1408. Salt water at 1416 .....	50	1450
Lime .....	65	1515
Sandy lime—oil and gas at 1525.....	15	1530
Lime .....	87	1617
Sand .....	10	1627
Dark, sandy lime.....	25	1652
Red shale .....	133	1785
Blue shale .....	79	1864
Lime .....	5	1869
Blue shale .....	22	1891
Gray lime .....	9	1900
Red shale .....	6	1906
Blue shale and lime .....	12	1918
Red shale .....	4	1922
Dark blue shale.....	20	1942
Dark lime .....	25	1967
Sand .....	7	1974
Sandy and limy shales .....	47	2021

Base of Devonian indefinite.

Top of Ordovician indefinite.

## LOG No. 591.

## JAMES STINSON FARM.

## Caney Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	19	19
Shale .....	51	70
Sand—gas at 171 .....	250	320
White pebble rock .....	13	333
Dark shale and sand .....	37	370
Sand .....	62	432
White pebble rock .....	46	478
Shale (base of Pottsville) .....	27	505
<b>MISSISSIPPIAN SYSTEM.</b>		
"Little lime" .....	8	513
Shale .....	6	519
"Big lime" .....	116	635
"Waverly"—oil show at 710 and 980.....	457	1092
Black shale (Sunbury) .....	8	1100
Sandy lime and shale .....	55	1155
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	235	1390
Very dark lime—gas at 1405.....	25	1415
Blue shale .....	63	1478
Lime—gas at 1493 .....	47	1525
Sandy lime .....	63	1588
Blue lime—gas at 1592. Oil at 1598.....	21	1609

## LOG No. 592.

## WHITTAKER WELL.

## Frisby Branch of Caney Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	40	40
Slate .....	100	140
Cannel Coal .....	6	146
Slate .....	69	215
Sand .....	70	285
Slate .....	100	385
Sand .....	205	590
Slate .....	5	595
Sand .....	35	630
Slate .....	60	690
Sand .....	70	760
Slate (base of Pottsville) .....	10	770

MISSISSIPPIAN SYSTEM.

"Little lime" .....	6	776
"Big lime"—cased at 782 .....	144	920
Waverly shale .....	470	1390
Black shale (Sunbury) .....	10	1400
Berea grit .....	30	1430
White slate .....	30	1460

DEVONIAN SYSTEM.

Brown shale .....	302	1762
White shale .....	30	1792
Lime—oil and gas at 1795 .....	25	1817

LOG No. 593.

CHARLIE COFFEY FARM.

White Oak Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	11	11
Slate—oil show at 110 .....	99	110
Gray sand .....	75	185
Blue slate .....	30	215
Coal .....	4	219
Blue slate .....	81	300
Gray sand .....	160	460
Blue slate .....	22	482
Blue lime .....	13	495
Blue slate .....	5	500
White sand (base of Pottsville) .....	120	620
MISSISSIPPIAN SYSTEM.		
Gray lime—"Little lime" .....	12	632
Blue slate .....	6	638
White lime } "Big lime" .....	30	668
Bastard lime } Oil show at 695.....	90	758
Blue slate (Waverly) .....	457	1215
Black slate (Sunbury) .....	24	1239
Lime (place of Berea) .....	40	1279
DEVONIAN SYSTEM.		
Black slate .....	273	1552
Black lime .....	20	1572
Blue slate .....	34	1606
Gray lime—oil show at 1610.....	200	1806
Sand .....	11	1817
Lime.		

LOG No. 594.

SAM REED FARM.

Right Fork of White Oak Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	4	4
Sand and clay .....	10	14
Sand .....	11	25
Shale .....	75	100
Lime .....	30	130
Sand .....	90	220
Black shale.....	10	230
Sand .....	90	320
Blue shale .....	35	355
Bastard lime .....	15	370
White sand .....	70	440
Black sand and shale .....	5	445
<b>MISSISSIPPIAN SYSTEM.</b>		
Black lime .....	50	495
White lime .....	135	630
Black slate .....	35	665
Sand .....	25	690
Blue slate .....	260	950
Black slate and lime .....	115	1065
Lime shells .....	5	1070
Black shale (Sunbury) .....	10	1080
Sand .....	25	1105
Lime .....	30	1135
White slate .....	15	1150
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	267	1417
Blue shale .....	3	1420
Flint and shale .....	35	1455
Brown lime and shale—gas .....	20	1475
Brown lime .....	80	1555

LOG No. 595.

W. H. VANCE FARM.

Right Fork of White Oak Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	10	10
Black slate .....	10	20
Sand .....	170	190
Sand and slate breaks .....	26	216
Slate .....	2	218
Sand—gas show at 248.....	102	320
Blue slate .....	32	352
Sand .....	114	466

MISSISSIPPIAN SYSTEM.

Blue slate .....	3	469
Sand .....	5	474
Blue slate.....	4	478
Sand and lime .....	8	486
"Big lime" .....	19	505
White slate .....	3	508
Lime (?) .....	77	585
Waverly shale .....	265	850
Black lime (?) .....	40	890
Waverly shale .....	133	1023
Brown slate (Sunbury) .....	12	1035
Sand—oi. and gas show .....	24	1059
Slate .....	23	1082
Sand .....	23	1105

DEVONIAN SYSTEM.

Black shale .....	301	1406
Light shale .....	35	1441
Lime—gas show .....	13	1454

LOG No. 596.

"RAINBOW" WELL.  
West Liberty.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	18	18
Gray sand .....	68	86
Coal .....	2	88
Fire clay (?) .....	10	98
White sand .....	230	328
Black slate (base of Pottsville) .....	40	368
MISSISSIPPIAN SYSTEM.		
Blue lime—"Little lime" .....	6	374
White slate .....	40	414
Lime—"Big lime" .....	60	474
Black slate .....	14	488
Waverly .....	513	1001
Black shale (Sunbury) .....	16	1017
Berea—gas show .....	17	1034
White shale .....	36	1070
White sand .....	9	1079
DEVONIAN SYSTEM.		
Black shale .....	259	1338
Blue and white shales .....	50	1388
Lime .....	185	1573

LOG No. 597.

BURNS WELL.  
West Liberty.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	18	18
Sand ....	68	86
Coal .....	2	88
Shale .....	10	98
White sand .....	230	328
Black slate (base of Pottsville) .....	40	368
MISSISSIPPIAN SYSTEM.		
Blue lime .....	6	374
White slate .....	40	414
"Big lime" .....	60	474
Black slate .....	14	488
Gray sand .....	532	1020
Black slate (Sunbury) .....	25	1045
White shale .....	50	1095
White sand (Berea?) .....	10	1105
DEVONIAN SYSTEM.		
Black shale .....	260	1365
Blue shale .....	43	1408
Sandy lime—oil show .....	30	1438
SILURIAN SYSTEM.		
Sand and slate .....	15	1453
Black slate .....	9	1462
Sandy lime—oil .....	40	1502
Hard lime .....	6	1508

LOG No. 598

REED No. 1.  
Neils Valley.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Coal Measures sands and shales.....	405	405
MISSISSIPPIAN SYSTEM.		
"Big lime" .....	110	515
Slate .....	40	555
Waverly .....	517	1072
DEVONIAN SYSTEM.		
Black shale .....	285	1357
Slate .....	31	1388
Lime—gas and oil show at 1447.....	89	1477
SILURIAN SYSTEM.		
Slate .....	17	1494
Lime—salt water at 1540.....	140	1634
Red rock.		

DRILLED WELLS--MORGAN COUNTY

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LOG No. 599.

MAY WELL No. 1.

Neils Valley.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Coal Measures sand and shales .....	415	415
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	125	540
Slate .....	33	573
Waverly .....	592	1165
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	259	1424
Slate .....	17	1441
Lime—gas and oil show at 1477, oil show at 1521, gas show at 1542.....	201	1642
Slate .....	30	1672
(Top of Silurian in 201 feet of lime.)		

LOG No. 600.

MAY WELL No. 2.

Neils Valley.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Coal Measures sand and shale .....	355	355
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	112	467
Slate .....	35	502
Waverly .....	508	1010
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	304	1314
Slate .....	30	1344
Lime—gas show at 1351, oil show at 1374, oil and gas show at 1548 .....	251	1595
Slate .....	35	1630
Red rock .....	250	1880
Lime .....	30	1910
Slate .....	161	2071
Lime—oil show at 2080.		
(Top of Silurian in 251 feet of lime.)		

LOG No. 601.

GEO. CASKY WELL.

Elk Fork.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Coal Measures sand and shales .....	412	412
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	110	522
Slate .....	40	562
Waverly .....	565	1127

DEVONIAN SYSTEM.		
Black shale .....	310	1437
White slate .....	29	1466
Lime—gas at 1466, oil show at 1489, salt water at 1500.....	53	1519
LOG No. 602. J. McLAIN WELL. Elk Fork.		

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Coal Measures sand and shales .....	410	410
MISSISSIPPIAN SYSTEM.		
“Big lime” .....	105	515
Slate .....	39	554
Waverly .....	559	1113
DEVONIAN SYSTEM.		
Black shale .....	315	1428
White slate .....	32	1460
Lime—tools lost—abandoned.		

LOG No. 603. H. NEIL WELL. Nells Valley.		
Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Coal Measures sand and shale .....	377	377
MISSISSIPPIAN SYSTEM.		
“Big lime” .....	99	476
Slate .....	35	511
Waverly .....	512	1023
DEVONIAN SYSTEM.		
Black shale .....	310	1333
White slate .....	30	1363
Lime—oil show at 1375, salt water at 1497 .....	134	1497

LOG No. 604. S. P. NICKELL FARM. Stacey Fork.		
Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	8	8
Slate .....	382	390
Sand .....	165	555
Slate .....	40	595
Sand .....	85	680
Slate .....	25	705
Sand .....	20	725
Slate (base of Pottsville) .....	5	730

MISSISSIPPIAN SYSTEM.

"Little lime" .....	25	755
"Pencil cave" .....	5	760
"Big lime" .....	140	900
Waverly shale .....	470	1370
Brown shale (Sunbury) .....	10	1380
Berea Grit .....	50	1430

DEVONIAN SYSTEM.

Brown shale .....	245	1675
White slate .....	25	1700
White sand (?)—oil and gas show at 1706 .....	15	1715

SILURIAN SYSTEM.

Lime .....	200	1915
White sand .....	6	1921
Brown sand .....	40	1961

ORDOVICIAN SYSTEM.

Sand and lime .....	40	2001
White slate .....	6	2007
Red rock .....	100	2107
White slate .....	40	2147
Red rock .....	60	2207
White slate .....	73	2280
Red rock and shells .....	110	2390
Rotten lime .....	124	2514

LOG No. 605.

JERRY STACEY FARM.

Stacey Fork.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	25	25
Shale and shells.....	170	195
Sand .....	280	475
Slate .....	15	490
Sand .....	100	590
MISSISSIPPIAN SYSTEM.		
Slate and lime .....	61	651
"Big lime" .....	115	766
Waverly shale .....	474	1240
Brown shale (Sunbury) .....	9	1249
Berea .....	31	1280
DEVONIAN SYSTEM.		
Brown shale .....	258	1538
White slate .....	25	1563
Sand .....	6	1569
Brown lime .....	6	1575
Gas well.		

LOG No. 606. JAMES McCLURE FARM.  
Grassy Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	12	12
Slate ....	28	40
Sand .....	10	50
Slate .....	100	150
Sand .....	178	328
Slate .....	52	380
Sand .....	10	390
Slate (base of Pottsville) .....	21	411
MISSISSIPPIAN SYSTEM.		
"Little lime"—cased at 415.....	19	430
"Big lime" .....	80	510
Slate and sand .....	90	600
Slate .....	40	640
Sand .....	115	755
Slate and shell .....	228	983
Sand .....	34	1017
Slate .....	33	1050
Shale .....	25	1075
DEVONIAN SYSTEM.		
Black shale .....	247	1322
White slate .....	25	1347
SILURIAN SYSTEM.		
Lime—gas at 1365 .....	63	1410
Lime—gas at 1475 .....	122	1532
ORDOVICIAN SYSTEM.		
Slate .....	10	1542
Red rock .....	108	1650
Slate .....	40	1690
Red rock .....	20	1710
Slate .....	30	1740
Red rock .....	10	1750
Shell and slate .....	60	1810
Slate .....	20	1830
Lime .....	572	2402

LOG No. 607. FRISBY BRANCH OF CANEY CREEK.  
Lessor, W. M. Plake. Lessee, Eastern Gulf Oil Co.  
Started April 21, 1917. Completed June 7, 1917.  
Total Depth 1817 feet.

Strata	Feet	Feet
PENNSYLVANIAN SYSTEM.		
Drift .....	0 to	40
Slate .....	40	140
Cannel Coal .....	140	146

Slate .....	146	215
Sand .....	215	285
Slate .....	285	385
Salt sand .....	385	590
Slate .....	590	595
Sand .....	595	630
Slate .....	630	690
Sand .....	690	760
Slate .....	760	770

MISSISSIPPIAN SYSTEM.

Little lime .....	770	776
Big lime, hard.....	776	920
Waverly shale .....	920	1390
Black .....	1390	1400
Berea Grit .....	1400	1430
White slate .....	1430	1460

DEVONIAN SYSTEM.

Brown shale .....	1460	1762
White slate .....	1762	1792
Cannel City oil.		
Sand .....	1792	1817

First oil pay at 2 ft. 6 inch in sand. Second oil pay at 9 ft. in sand. No water showing. A strong flow of gas was struck at 1795 which was 3 ft. in sand. Oil also at same depth rose 500 ft. in hole. Showing of fresh water at 390 ft. enough to drill well. Well flooded at 500 ft. 6¼ inch casing, 782 ft. 8¼ inch casing, 20 ft. Drillers: Kelly Neal and W. S. Potts.

LOG No. 608.

J. A. OLDFIELD FARM.

Mize P. O.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Slate and shells .....	90	90
White sand .....	200	290
Slate (base of Pottsville) .....	50	340
MISSISSIPPIAN SYSTEM.		
"Little lime" .....	20	360
"Big lime" .....	115	475
Waverly shale .....	565	1040
DEVONIAN SYSTEM.		
Brown shale (Devonian) .....	185	1225
White slate .....	15	1240
Brown shale .....	6	1246

## MUHLENBERG COUNTY.

LOG No. 609.

WELL BETWEEN CENTRAL CITY AND KINCHELOE FERRY.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	16	16
Shale .....	38	54
Dark slate .....	5	59
Coal .....	5	64
Sand .....	22½	86½
Coal .....	5½	92
Sandstone .....	3	95
Coal .....	6	101
Sand .....	10½	111½
Coal .....	3½	115
Sand .....	84	199
Shale .....	8	207
Dark slate .....	10	217
Coal (No. 9) .....	6	223
Shale .....	64	287
Sand .....	42	329
Coal .....	7	336
Shale .....	8	344
Dark slate .....	10	354
Shale .....	7	361
Sand .....	11	372
Shale .....	21	393
Black slate .....	13	406
Coal .....	3½	409½
Sandstone .....	16½	426
Slate .....	34	460
Shale .....	10	470
Sand .....	9	479
Shale .....	5	484
Slate .....	10	494
Shale .....	15	509
Sand .....	10	519
Saidstone .....	9	528
Shaly sandstone .....	10	538
Sand .....	6	544
Shale .....	12	556
Shaly sand .....	16	572
Sand .....	32	604
Coal .....	6	610
Slate .....	15	625
Shale .....	8	633

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Sand .....	70	703
Slate .....	5	708
Sand .....	28	736
Slate .....	9	745
Black rock .....	15	760
Sand .....	39	799
Slate .....	45	844
Sand .....	38	882
Lime and sand .....	158	1040
Dark slate .....	48	1088
Sand and lime .....	37	1125
Dark slate .....	64	1189
Shale .....	18	1207
Sand and lime .....	47	1254
Slate .....	27	1281
Sand and lime .....	29	1310
Dark slate .....	8	1318
(Probably all Pottsville.)		

NICHOLAS COUNTY.

LOG No. 610.                      DICK WHALEY FARM.  
Near Myers Station.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Clay .....	10	10
“Trenton” lime*—Gas shows at 40, 89 and 175 .....	200	210
Gray lime .....	490	700
White gritty lime—“Blue Lick” water at 708 .....	16	716
*“Trenton” is driller’s distinction.		

OHIO COUNTY.

LOG No. 611.  
WELL 1 MILE S. E. OF SOUTH CARROLLTON.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	70	70
Gravel .....	27	97
White shale .....	8	105
Black shale .....	10	115
Coal (No. 11 ?) .....	5	120
Black slate .....	10	130
Dark shell .....	3	133
White slate .....	27	160
Gray sand .....	40	200

Black slate .....	35	235
Coal (No. 9?) .....	5	240
Black slate .....	78	318
White lime .....	5	323
Dark slate .....	20	343
Coal .....	7	350
Dark slate .....	74	424
Gray sand .....	32	456
Dark slate .....	64	520
Gray lime .....	10	530
Red rock .....	3	533
Dark slate .....	67	600
Gray sand .....	65	665
White slate .....	50	715
Dark sand .....	30	745
Dark slate .....	85	830
Dark sand .....	20	850
Dark slate .....	85	935
Dark sand .....	10	945
Slate and shell .....	75	1020
Sand .....	20	1040
Dark slate .....	55	1095
White sand .....	10	1105
Dark slate .....	195	1300
White sand—(probably base of Pottsville)	105	1405

## MISSISSIPPIAN SYSTEM.

Dark lime .....	15	1420
Lime and slate .....	145	1565
Slate and shells .....	71	1636
Sand .....	50	1686
Dark lime .....	35	1721
White slate .....	10	1731
Dark lime .....	20	1751
Dark slate .....	19	1770
Red rock .....	25	1795
Sand and red rock .....	30	1825
Slate and lime shells .....	40	1865
Sand .....	20	1885
Lime and shells .....	62	1947
Red rock .....	8	1955
Dark lime .....	62	2017
Sand .....	38	2055
Gray lime .....	35	2090
Dark slate .....	20	2110
Gray sand .....	12	2122

The well did not reach the Devonian shale.

# DRILLED WELLS—OHIO COUNTY

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LOG No. 612.

WEST KENTUCKY OIL CO. No. 1.

5 miles N. E. of Hartford.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil (starts in Chester) .....	14	14
Lime .....	5	19
Blue shale .....	16	35
Lime and slate .....	65	100
Black shale .....	20	120
Lime and shale .....	4	124
Slate .....	24	148
Slate and sandy lime .....	22	170
Blue shale .....	15	185
Sand and lime .....	56	241
Blue shale .....	5	246
Hard lime .....	17	263
White sandstone .....	36	299
White lime .....	14	313
Sand—Oil show .....	8	321
Lime .....	6	327
Sandy shale .....	3	330
Lime .....	9	339
Black shale .....	3	342
Bluish lime .....	28	370
White lime ....	28	398
Brown lime—Oil and gas show.....	30	428
Hard white lime .....	42	470
Soft white lime .....	15	485
Bluish lime .....	5	490
Soft white lime .....	20	510
Hard white lime .....	5	515
Blue shale .....	5	520
Blue lime .....	10	530
Brown lime .....	10	540
White lime .....	20	560
Blue lime.....	10	570
Gray lime .....	10	580
White lime .....	20	600
Brown lime .....	5	605
White lime .....	5	610
Brown lime .....	10	620
Gray lime .....	10	630
Brown lime .....	7	637
White lime .....	6	643
Brown lime .....	7	650

White lime .....	47	697
Brown lime .....	5	702
White lime .....	6	708
Lime—Gas show .....	1	709
Lime—Water .....	11	720
Lime—Oil show .....	5	725
White lime .....	10	735
Brown lime .....	37	772
Hard siliceous bed .....	8	780
Oil sand .....	21	801
Sandy lime .....	409	1210

DEVONIAN SYSTEM.

Black shale .....	100	1310
Brownish-black shale .....	220	1530
Black shale .....	120	1650
Sandy lime .....	21	1671
Oil sand .....	15	1686

OLDHAM COUNTY.

LOG No. 613.

WELL AT LA GRANGE.  
(Partial record).

Strata		Feet
ORDOVICIAN SYSTEM.		
Gray lime .....	at	790
Dark gray lime .....	at	835
Light dove-colored lime* .....	at	930
Dark dove-colored lime .....	at	1025
White lime .....	at	1225
Dove-colored lime .....	at	1260
Very dark dove-colored lime.....	at 1315 to	1365
Dove-colored lime .....	at	1380
“Blue Lick” water .....	at	1450
Light sandy lime† .....	at 1450 to	1555

\*Top of Tyrone is at 900, about.  
†Top of Calciferous is between 1380 and 1450.

(The first few feet of the well may be Silurian but the imperfect record does not allow the change from Silurian to Ordovician to be noted.)

OWSLEY COUNTY.

LOG No. 614.

LOWER BUFFALO CREEK NEAR LEE AND OWSLEY CO. LINE.

One-half mile from Creek on North Side.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	5	5
Slate .....	21	26
Sand .....	44	70
Slate .....	30	100
Shells or slate .....	110	210
Sand .....	240	450
Slate .....	25	475
<b>MISSISSIPPIAN SYSTEM.</b>		
Little lime .....	15	490
Slate .....	10	500
Big lime .....	120	620
Slate .....	10	630
Lime .....	25	655
Sand .....	15	670
White slate shells .....	170	840
Dark slate shells .....	280	1120
<b>DEVONIAN SYSTEM.</b>		
Black slate .....	163	1283
White slate .....	3	1286
Brown shale .....	23	1309
Pay at .....		1317
Sand .....	11	1320

LOG No. 615.

Lessor, T. W. Cooper. Lessee, Eastern Gulf Oil Co.

Started July 1, 1918. Completed August 21, 1918.

Total Depth 1423½ feet.

	Feet	
Gas at .....	225	
Oil at .....	1330	
Salt water .....	1339	
Cap rock .....	1328	
Top first pay .....	1339	Water
Feet first pay .....	10	
Bottom first pay .....	1349	

Small show of oil at 1330 feet. No show of oil after salt water.

Strata	Feet	Feet
PENNSYLVANIAN SYSTEM.		
Clay .. .. .	1	5
Slate .. .. .	5	18
Coal .. .. .	18	19½
Slate shells .. .. .	19½	20
Coal .. .. .	90	94
Slate shells .. .. .	94	210
Sand .. .. .	210	225
Sand .. .. .	225	300
Break slate .. .. .	300	310
Sand shells .. .. .	310	380
Slate .. .. .	380	400
MISSISSIPPIAN SYSTEM.		
Slate shells .. .. .	400	490
Big lime .. .. .	490	500
Bottom big lime .. .. .	500	655
Slate .. .. .	655	675
Shells and slate .. .. .	675	745
Slate and shells .. .. .	745	805
Red rock .. .. .	805	810
Slate and shells .. .. .	810	890
Black shale .. .. .	890	920
Slate and shells .. .. .	920	1100
Shell .. .. .	1100	1102
DEVONIAN SYSTEM.		
Brown shale .. .. .	1102	1135
White slate .. .. .	1296	1302
Black shale .. .. .	1302	1328
Top sand .. .. .		1328
Salt water .. .. .		1338
Casing 4 7-8 .. .. .		1348
Pulled casing and reamed to 1358 feet.		
Set casing at 1358 feet.		
White sand 10 feet below casing.		
Brown sand 50 feet in sand, looked very good.		
Dark brown sand at 60 feet.		
Gray sand from 70 feet to 1423½ feet.		
8¼ in. casing—47 feet out.		
6¼ in. casing—500 feet out.		
4⅞ in. casing—1349 feet out.		
Total depth 1423½ feet.		
Well plugged and abandoned.		
Arnes Drilling Co., Contractors.		

PERRY COUNTY.

LOG No. 616.

WELL AT CHAVIES STATION.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand .....	36	36
Slate, gravel, etc. ....	74	110
Sand .....	20	130
Lime (?) .....	15	145
Slate .....	115	260
Sand .....	35	295
Slate and shale .....	205	500
Sand .....	50	550
Lime (?) .....	50	600
Shale .....	100	700
Sand—salt water .....	220	920
Slate .....	5	925
Sand .....	60	985
Black slate (base of Pottsville) .....	25	1010
<b>MISSISSIPPIAN SYSTEM.</b>		
Red shale .....	18	1028
Sand .....	212	1240
Red rock .....	5	1245
Slate and shells .....	64	1309
Lime .....	12	1321
Slate .....	14	1335
"Pencil cave" .....	6	1341
"Big lime" .....	200	1541
Sand and lime .....	23	1564
Red shale .....	51	1615
Sandy slate .....	50	1665
Black slate .....	135	1800
Sandy lime .....	20	1820
<b>DEVONIAN SYSTEM.</b>		
Black shale—gas show at 2075.....	315	2135
Sand and lime .....	16	2151
Black slate .....	22	2173
<b>SILURIAN SYSTEM.</b>		
Slate .....	33	2206
Sandy lime .....	194	2400
Slate .....	58	2458
Red shale .....	32	2490
Slate .....	56	2546
Lime and shale .....	70	2616
Slate and lime .....	29	2645
Pink shale .....	10	2655
Lime and shells .....	90	2745

LOG No. 617.

## WELL 1 MILE NORTH OF CHARIER STATION.

Elevation 790, Approx.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand and gravel .....	17	17
Black slate .....	63	80
White sand .....	55	135
Dark slate .....	82	217
Sand .....	44	261
Slate .....	7	268
Sand .....	43	311
Slate .....	196	507
White sand .....	45	552
Slate .....	30	582
Sand .....	313	895
Sand and slate .....	15	910
Sand—salt water at 1126 and 1165.....	267	1177
Slate (base of Pottsville) .....	5	1182
<b>MISSISSIPPIAN SYSTEM.</b>		
Red shale .....	8	1190
Sand .....	19	1209
Red shale .....	7	1216
Black slate .....	45	1261
Sand .....	7	1268
Slate .....	7	1275
Lime .....	21	1296
Black slate .....	24	1320
Lime—"Big lime" .....	233	1553
Slate and shale .....	87	1640
Sand .....	235	1875
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	270	2145
Slate .....	34	2179
<b>SILURIAN SYSTEM.</b>		
Lime .....	168	2347
Sand .....	17	2364
Lime .....	25	2389
<b>ORDOVICIAN SYSTEM.</b>		
Slate .....	396	2785
Lime .....	315	3100

# DRILLED WELLS—PERRY COUNTY

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LOG No. 618.

## WELL AT FORKS OF BIG CREEK.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Black slate .....	305	305
Sand—trace of oil at 372.....	230	535
Slate .....	15	550
Sand .....	50	600
Slate .....	15	615
Sand .....	85	700
Slate .....	15	715
Sand—salt water at 1190 .....	598	1313
MISSISSIPPIAN SYSTEM.		
Lime .....	27	1340
Sand .....	14	1354
Slate .....	31	1385
Lime .....	31	1416
Slate .....	8	1424
Sand .....	12	1436
Slate .....	46	1482
Sand—salt water at 1510-1517.....	35	1517

LOG No. 619.

## BUFFALO CREEK.

Rice Oil Co.

Casing Head Elevation 879 ft.

Started March 21, 1917. Completed July 1, 1917.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand gravel .....	10	10
Sand .....	5	15
Slate cave with water .....	10	25
Sand .....	20	45
Slate with water .....	5	50
Sand .....	40	90
Slate and shells .....	40	130
Sandstone .....	20	150
Slate and shells .....	185	335
Three feet coal at 290.		
Sandy lime .....	105	440
Lime broken .....	35	475
Shale .....	25	500
Black lime .....	30	530
Slate .....	45	575
Sand .....	40	615

Lime, hard .....	8	623
Slate .....	62	685
Sand, hard and sharp .....	165	850
Slate .....	20	870
Black lime .....	15	885
Slate .....	15	900
Sand .....	140	1040
Slate, black .....	35	1075
Sand, hard .....	135	1210
Slate .....	6	1216
Sand, hard and close .....	130	1346
Slate .....	94	1440

## MISSISSIPPIAN SYSTEM.

Sand .....	60	1500
Slate and shells .....	60	1560
Sand .....	85	1645
Slate .....	45	1690
Sand .....	85	1775
Sandy lime, shells and slate .....	75	1850
Shelly slate .....	50	1900
"Little Lime" .....	10	1910
Slate Cave, cemented "Pencil Cave".....	55	1965
Big lime .....	230	1155
Red lime .....	30	2285
Slate and shells .....	145	2370
Lime, hard .....	10	2380
Slate .....	90	2470

## DEVONIAN SYSTEM.

Black shale .....	330	2800
Black shale, shelly .....	65	2865
White shale .....	47	2912

## SILURIAN SYSTEM.

Sandy lime .....	156	3068
Slate .....	5	3072
Gas at 2475 feet.		
Gas at 2585 feet.		
Salt water 1740 feet.		
50 feet—10 inch casing.		
1215 feet—8 inch casing.		
1780 feet—6½ inch casing.		
Should have been 300 feet—10 inch casing.		
1965 feet—6½ inch casing.		

## PIKE COUNTY.

LOG No. 620.

MAY FARM.

Bear Fork of Robinson Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	34	34
Gray sand .....	27	61
Slate .....	32	93
Dark sand .....	53	146
Black slate .....	3	149
Dark sand .....	11	160
Sandy slate .....	18	178
Blue sand—salt water .....	59	237
Black slate .....	7	244
White sand .....	78	322
Sandy slate .....	30	352
Black slate .....	32	384
Blue sand .....	21	405
Black slate .....	57	462
Sand .....	37	499
Black slate .....	67	566
Sand (Beaver and Horton)—salt water....	279	845
Black slate .....	35	880
Sand (Pike—gas, salt water.....	395	1275
Black slate (base of Pottsville .....	32	1307
MISSISSIPPIAN SYSTEM.		
Dark slate (top of Chester) .....	33	1340
Sand .....	60	1400
Light slate .....	90	1490
Red shale .....	6	1496
Slate .....	33	1529
Gray sand .....	63	1592
Lime .....	8	1600
Slate .....	30	1630
Sand (Big Injun?)—gas .....	56	1686
Dark slate .....	65	1751

LOG No. 621.

WELL ON CEDAR CREEK.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	41	41
Light slate .....	23	64
Sand .....	10	74
Dark slate .....	40	114
Sand .....	10	124
Light slate .....	96	220

Coal .....	4	224
Dark slate .....	176	400
Sand .....	25	425
Black slate .....	75	500
White sand (Beaver and Horton?) .....	285	785
Dark slate .....	72	857
Sand (Pike and Salt?) .....	310	1167
MISSISSIPPIAN SYSTEM.		
Shelly slate .....	108	1275
Red shale .....	105	1380
White sand .....	40	1420
Black slate .....	5	1425
Sand .....	74	1499

LOG No. 622.

## WELL ON CEDAR CREEK.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	52	52
Slate .....	42	94
Light sand .....	36	130
Light slate .....	88	218
Light sand .....	33	251
Light slate .....	79	330
Black slate .....	45	375
Gray sand .....	51	426
Slate .....	53	479
Sand (Beaver and Horton?)—gas—salt water .....	278	757
Black slate .....	64	821
Sand (Pike) .....	59	880
Light slate .....	50	930
Sand (salt sand)—gas—salt water.....	202	1132
MISSISSIPPIAN SYSTEM.		
Black slate .....	49	1181
Black sand .....	14	1195
Dark slate .....	16	1211
Dark limy sand .....	25	1236
Black lime .....	12	1248
Shelly slate .....	10	1258
Red shale .....	20	1278
Gray sand .....	3	1281
Red shale .....	69	1350
Gray lime ("Big lime"—nearly cut out)....	1	1351
White sand .....	62	1413
Black slate .....	27	1440
White sand (Big Injun?)—oil—salt water	61	1501

LOG No. 623.

WELL ON BIG CREEK.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	24	24
Slate .....	10	34
Gray sand .....	12	46
Dark slate .....	8	54
Gray sand .....	35	89
Slate .....	10	99
Gray sand .....	21	120
Dark slate .....	4	124
Sand .....	15	139
Dark slate .....	46	185
Limy sand .....	15	200
Gray sand .....	55	255
Slate .....	80	335
Coal .....	4	339
Sand .....	42	381
Slate .....	64	445
Lime .....	10	455
Slate .....	30	485
Black sand .....	10	495
Slate .....	15	510
Sand .....	75	585
Slate .....	15	600
White sand (Beaver) .....	355	955
Slate .....	27	982
Sand (Horton) .....	130	1112
Coal .....	3	1115
Sand (Pike)—gas and salt water .....	134	1249
Coal .....	3	1252
Dark sand .....	12	1264
Dark slate .....	24	1288
White sand .....	152	1440
<b>MISSISSIPPIAN SYSTEM.</b>		
Black slate .....	24	1464
White sand—salt water .....	61	1525
"Big lime" .....	215	1740
Dark sand .....	25	1765
Slate .....	15	1780

Mauch Chunk cut out and replaced by Pottsville sands.

LOG No. 624.

BOWLES FARM.  
Hurricane Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	18	18
Gray sand .....	27	45
Dark slate .....	50	95
Gray sand .....	15	110
Dark slate .....	48	158
Gray sand .....	46	204
Dark slate .....	81	285
Gray sand .....	45	330
Light slate .....	53	383
Black slate .....	25	408
Gray sand .....	40	448
Dark slate .....	132	580
Gray sand .....	40	620
Dark slate .....	50	670
Sand (Beaver and Horton?)—salt water	260	930
Dark slate .....	52	982
White sand (Pike)—gas .....	59	1041
Dark slate .....	12	1053
Sand (Salt sand)—salt water .....	187	1240
MISSISSIPPIAN SYSTEM.		
Black slate .....	30	1270
Gray sand .....	32	1302
Black slate .....	12	1314
Limy sand .....	18	1332
Light slate .....	17	1349
White sand .....	13	1362
Lime .....	16	1378
Slate .....	5	1383
Red shale and slate .....	49	1432
Sand—gas and salt water .....	222	1654
Black slate .....	108	1762
Lime ....	2	1764

LOG No. 625.

WELL ON POOR FARM.  
2 Miles from Pikeville.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	52	52
Gray sand .....	8	60
Slate .....	75	135
Sand .....	29	164
Slate .....	76	240
Sand .....	40	280

DRILLED WELLS—PIKE COUNTY

481

Slate .....	154	434
Sand .....	24	458
Slate .....	60	518
White sand (Beaver and Horton?) .....	289	807
Black slate .....	56	863
White sand (Pike?) .....	52	915
Black slate .....	5	920
White sand .....	147	1067
Black slate .....	7	1074
Sand .....	61	1135
Slate .....	5	1140
Sand .....	12	1152

MISSISSIPPIAN SYSTEM.

Shelly slate .....	35	1187
Sand .....	47	1234
Light slate .....	25	1259
Sand .....	20	1279
Sandy slate .....	12	1291
Sand .....	16	1307
Gray lime .....	12	1319
Dark slate .....	3	1322
Red rock .....	88	1410
White sand .....	7	1417
Black slate .....	15	1432
Dark lime .....	4	1436
Black slate .....	70	1506
White sand—gas .....	36	1542
Red slate .....	21	1563
White sand—salt water .....	27	1590

LOG No. 626.

SCHONSBERG WELL.  
Caney Fork of Johns Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	42	42
Slate .....	30	72
Gray sand .....	32	104
Slate .....	216	320
Gray sand .....	35	355
Slate .....	66	421
Sand .....	57	478
Slate .....	13	49
Lime .....	8	499
Sand .....	9	508
Lime .....	5	513
Sand .....	8	521

Slate .....	20	541
Sand .....	22	563
<del>Slate</del> .....	12	575
Sand ..	65	640
Slate ..	15	655
White sand (Beaver and Horton) .....	230	885
Slate ..	30	915
Sand (Pike and Salt) .....	421	1336
<b>MISSISSIPPIAN SYSTEM.</b>		
Red rock .....	18	<del>1154</del>
Slate .....	5	1359
<del>Sand</del> .....	77	1436
Red shale and slate .....	64	1500
"Big lime"—oil and gas at 1615 .....	240	1740
Slate .....	55	<del>1795</del>
Reddish sand .....	80	1876
Slate .....	260	2135

LOG No. 627.

**HENRY TAYLOR FARM.**  
Brushy Fork of Johns Creek.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	13	13
Sand .....	42	55
Slate .....	160	215
Sand .....	70	285
Black slate .....	50	335
Coal .....	5	340
Light slate .....	7	347
Sand .....	38	385
Dark slate .....	113	498
Sand .....	69	567
Dark slate .....	65	632
Sand ..	33	665
Black slate .....	35	700
Sand .....	17	712
<del>Slate</del> .....	26	738
Sand (Beaver)—gas and salt water .....	72	810
Slate .....	11	821
Sand (Horton) .....	99	920
Dark slate .....	5	925
White sand } salt water. ....	47	972
Dark slate } (Pike) .....	5	977
White sand } salt water .....	41	1018
Sandy slate .....	54	1072
White, pebbly sand—gas and salt water .....	129	1201

MISSISSIPPIAN SYSTEM.

Lime (top of Chester).....	15	1216
Black slate .....	18	1234
Red shale .....	22	1256
Blue slate .....	34	1290
Lime .....	15	1305
- Sand—salt water .....	83	1388
Slate .....	2	1390

LOG No. 628.

FLEM MAYNARD FARM.

Big Branch of Brushy Fork.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	9	9
Sand .....	4	13
Light slate .....	27	40
Gray sand .....	54	94
Dark slate .....	11	105
White sand .....	37	142
Dark slate .....	62	204
White sand .....	30	234
Black slate .....	16	250
Coal .....	3	253
Light slate .....	7	260
Gray sand .....	105	365
Dark Slate .....	31	396
Coal .....	4	400
Dark slate .....	10	410
Sand (Beaver)—salt water .....	82	492
Black slate .....	70	562
White sand (Horton) .....	21	583
Slate .....	208	791
White sand (Pike)—gas and salt water....	251	1042
Black slate .....	13	1055
Sand .....	12	1067
Black slate .....	68	1135
Sand (salt sand)—gas and salt water.....	152	1287
Coal .....	1	1288
Sand (base of Pottsville) ...	24	1312

MISSISSIPPIAN SYSTEM.

Red shale .....	12	1324
Sandy slate .....	15	1339
White sand .....	61	1400
Lime .....	12	1412
Slate .....	8	1420
Sand .....	77	1497
Sandy slate .....	24	1521
Gray sand .....	18	1539
Sandy slate .....	27	1566
"Big lime" .....	214	1780
Blue sand .....	20	1800
Slate .....	410	2210

DEVONIAN SYSTEM.

Dark brown slate .....	47	2257
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LOG No. 629.

JEFF HENDRICK WELL.

Upper Chloe Creek.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	41	41
Black slate .....	49	90
Gray sand .....	18	108
Coal .....	2	110
Slate .....	50	160
Sand .....	20	180
Shelly slate .....	160	340
Gray sand .....	52	392
Dark slate .....	83	475
Gray sand .....	55	530
Shelly slate .....	143	673
White sand .....	62	735
Slate .....	20	755
Gray sand .....	21	776
White sand .....	294	1070
Coal .....	1	1071
Gray and white sand .....	81	1152
Slate .....	11	1162
White sand .....	74	1236
Slate .....	106	1342
White sand—salt water at 1362.....	52	1394

MISSISSIPPIAN SYSTEM.

Slate .....	44	1438
Sand .....	14	1452
Slate .....	24	1476
Sand .....	18	1494
Slate .....	20	1514
White sand .....	66	1570
Slate .....	21	1591
Very black slate .....	6	1597
Gray and white sand .....	12	1609
Slate .....	41	1650
Gray sand .....	29	1679
White sand .....	19	1698
Slate ....	20	1718
Gray sand .....	18	1736
Slate .....	5	1741
Lime .....	24	1765
Red shale .....	14	1779
Lime .....	136	1915
Slate .....	10	1925
Sandy lime .....	35	1960
Slate (caving) .....	30	1990

POWELL COUNTY.

LOG No. 630.

J. F. MARTIN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	3	3
Shale .....	192	195
DEVONIAN SYSTEM.		
Black shale { (Devonian) .....	129	324
Light shale { .....	30	354
Brown lime—"Ragland sand"—gas show	20	374
SILURIAN SYSTEM.		
Shale .....	113	487
Lime .....	10	497
Shale .....	23	520
Lime .....	30	550
Shale .....	15	565
ORDOVICIAN SYSTEM.		
Lime .....	253	818

LOG No. 631.

J. F. MARTIN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	5	5
Shale .....	270	275

DEVONIAN SYSTEM.		
Black shale .....	125	400
Lime—"Ragland sand"—gas show .....	24	424
SILURIAN SYSTEM.		
Shale .....	140	564
Brown lime .....	10	574
Shale .....	6	580
Lime .....	95	675
Shale .....	12	687
ORDOVICIAN SYSTEM.		
Lime .....	122	809

LOG No. 632.

J. F. MARTIN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	10	10
Shale .....	215	225
DEVONIAN SYSTEM.		
Black shale .....	125	350
Lime—"Ragland sand"—gas .....	24	374
SILURIAN SYSTEM.		
Shale .....	141	515
Brown lime .....	10	525
Shale .....	5	530
Lime—oil show .....	80	610
Shale .....	15	625
ORDOVICIAN SYSTEM.		
Lime .....	150	775
Shale .....	10	785
Lime .....	29	814

LOG No. 633.

WHITE FARM—No. 5.  
(Partial record).

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	24	24
Sand .....	160	184
MISSISSIPPIAN SYSTEM.		
Interval.		
"Big lime" .....	106	472
Interval.		
DEVONIAN SYSTEM.		
Brown shale .....	148	1116
Fire clay .....	19	1135
Top of "oil sand" .....		1135

# DRILLED WELLS—POWELL COUNTY

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LOG No. 634.

## WILLIAMS No. 1. Stanton.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Soil and sand .....	24	24
Black shale .....	108	132
White shale } (Devonian) .....	18	150
"Irvine sand"—gas at 155 .....	8	158
Light shale .....	59	217
"Oil sand"—oil .....	7	224

LOG No. 635.

## STARKS FARM. Barker Branch.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	39	39
Lime .....	125	164
Shale .....	101	265
Lime shale .....	98	363
Gray shale .....	383	746
"Gas sand" .....	18	764
DEVONIAN SYSTEM.		
Black shale .....	137	901
"Fire clay" .....	15	916
"Oil sand"—oil .....	18	934

LOG No. 636.

## WINGATE ANDERSON FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	20	20
Shale .....	30	50
Lime .....	5	55
Shale .....	35	90
DEVONIAN SYSTEM.		
Black shale .....	135	225
Light shale .....	140	365
Lime—oil show at 400. Gas show at 1200 .....	985	1350
Brown lime (Tyrone?) .....	262	1612
(Ragland sand cut out).		
Base of Devonian indefinite.		

LOG No. 637.

## SUSAN HANKS FARM.

Strata	Thickness	Depth
<b>DEVONIAN SYSTEM.</b>		
Clay .....	4	4
Black shale .....	126	130
Lime—"Ragland sand" .....	13	143
<b>SILURIAN SYSTEM.</b>		
Shale .....	52	195
Lime—oil show .....	3	198
Shale .....	12	210
Lime—salt water .....	15	225
Shale .....	10	235
Lime .....	78	313

LOG No. 638.

## J. R. EWEN FARM.

Strata	Thickness	Depth
<b>DEVONIAN SYSTEM.</b>		
Clay .....	22	22
Black shale .....	134	156
Lime—"Ragland sand" .....	10	166
<b>SILURIAN SYSTEM.</b>		
Shale .....	54	220
Lime .....	3	223
Shale .....	10	233
Lime .....	320	553
(Base of Silurian not defined.)		

LOG No. 639.

## O. M. LAW FARM.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Clay .....	12	12
Black shale .....	138	150
Lime—"Ragland sand" .....	10	160
<b>SILURIAN SYSTEM.</b>		
Shale .....	40	200
Lime—oil show .....	3	203
Shale .....	11	214
Lime .....	292	506
(Base of Silurian not defined.)		

# DRILLED WELLS—POWELL COUNTY

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LOG. No. 640.

C. B. SKIDMORE FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	25	25
Shale .....	100	125
Lime .....	2	127
Shale .....	10	137
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	170	307
<b>SILURIAN SYSTEM.</b>		
Light shale .....	143	450
Lime .....	1059	1509
(Ragland sand cut out.)		
(Base of Silurian not defined.)		

LOG No. 641.

WM. TRUETT FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	10	10
Shale .....	90	100
Red rock .....	15	115
Shale .....	45	160
DEVONIAN SYSTEM.		
Black shale .....	120	280
Light shale ..	} (Devonian) .....	290
Lime—"Ragland sand" .....		
SILURIAN SYSTEM.		
Shale .....	115	410
Lime .....	10	420
Shale .....	20	440
Lime .....	10	450
Shale .....	10	460
Lime .....	154	614
(Base of Silurian not defined.)		

LOG No. 642.

MILES FORKNER FARM.

Strata	Thickness	Depth
<b>DEVONIAN SYSTEM.</b>		
Clay .....	14	14
Black shale .....	118	132
Light shale .....	3	135
Lime—"Ragland sand" .....	7	142
<b>SILURIAN SYSTEM.</b>		
Shale .....	53	195
Lime .....	3	198
Shale .....	12	210
Gray lime—oil show ...	20	230
Lime .....	21	251

## LOG No. 644.

## JAS. H. LANE FARM.

Strata	Thickness	Depth
<b>DEVONIAN SYSTEM.</b>		
Soil .....	22	22
Black shale .....	80	102
Brown lime—"Ragland sand"—Gas and salt water .....	10	112
<b>SILURIAN SYSTEM.</b>		
Shale .....	48	160
Lime .....	15	175
Shale .....	5	180
Lime .....	627	807
(Base of Silurian not defined.)		

## LOG No. 645.

## ROBERT ROSE FARM.

Strata	Thickness	Depth
<b>DEVONIAN SYSTEM.</b>		
Slate and gravel.....	13	13
Black Shale (Devonian) .....	87	100
Lime—"Ragland sand"— gas and salt water .....	20	120
<b>SILURIAN SYSTEM.</b>		
Shale .....	80	200
Lime .....	680	880
(Base of Silurian not defined.)		

## LOG No. 646.

## JAMES WELSH FARM.

Strata	Thickness	Depth
<b>DEVONIAN SYSTEM.</b>		
Clay .....	17	17
Black shale .....	8	25
Brown lime—"Ragland sand" .....	24	49
<b>SILURIAN SYSTEM.</b>		
Shale .....	65	114
Blue lime—Oil at 133 .....	19	133
Shale .....	14	147
Lime—Gas at 310 .....	534	681
Brown shale .....	19	700
Lime .....	251	951
(Base of Silurian not defined.)		

LOG No. 647.

LUTHER STEPHENS FARM.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Soil .....	13	13
Black shale .....	117	130
SILURIAN SYSTEM.		
Light shale .....	62	192
Brown lime—Oil show .....	4	196
Blue shale .....	10	206
Lime .....	1001	1207
(Ragland sand cut out.)		
(Base of Silurian not defined.)		

LOG No. 648.

LUTHER STEPHENS FARM.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Clay .....	14	14
Black shale .....	126	140
Lime—"Ragland sand" .....	10	150
SILURIAN SYSTEM.		
Light shale .....	46	195
Brown lime—oil show .....	3	196
Shale .....	11	209
Lime .....	95	304

LOG No. 649.

O. A. LISLE FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Clay .....	15	15
Lime .....	2	17
Shale .....	15	32
DEVONIAN SYSTEM.		
Black shale .....	135	167
Lime—"Ragland sand" .....	10	177
SILURIAN SYSTEM.		
Shale .....	50	227
Lime .....	2	229
Shale .....	86	315
ORDOVICIAN SYSTEM.		
Lime .....	522	837

## LOG No. 650.

## A. M. SWANGO FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	11	11
Shale .....	10	21
Lime .....	3	24
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	163	137
Lime—"Ragland sand" .....	10	197
<b>SILURIAN SYSTEM.</b>		
Shale .....	43	240
Lime .....	3	243
Shale .....	10	253
Blue lime .....	997	1250
Brown lime .....	251	1501
(Base of Silurian not defined.)		

## LOG No. 651.

## MAXWELL FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	18	18
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	160	178
Lime—"Ragland sand" .....	5	183
<b>SILURIAN SYSTEM.</b>		
Shale .....	107	290
Lime—Oil show .....	5	295
Shale .....	30	325
<b>ORDOVICIAN SYSTEM.</b>		
Gray lime—Oil show .....	10	335
Blue lime .....	85	420
Gray lime—Oil show .....	2	422
Blue lime .....	318	740
Gray lime .....	62	802

## LOG No. 652.

## ROBERT BOYD FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	120	120
Green shale .....	20	140
White shale .....	470	610

DEVONIAN SYSTEM.

Black shale .....	147	757
"Fire clay" (shale) .....	18	775
Lime—"Oil sand"—Salt water at 776.....	11	786
White lime .....	12	798

SILURIAN SYSTEM.

Blue lime—Salt water .....	10	808
White lime .....	21	829
Blue lime .....	26	855

PULASKI COUNTY.

LOG No. 653.

WELL AT EUBANKS.  
(Partial record.)

Strata

MISSISSIPPIAN SYSTEM.

Light lime .....	at 50
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DEVONIAN SYSTEM.

Dark shale .....	at 120 and 160
Black shale .....	at 360 to 400
Gray lime .....	at 400 and 500
Dark shaly lime .....	at 540

SILURIAN SYSTEM.

Light shale .....	at 675
Motted red lime .....	at 695 and 700
Gray and white lime .....	at 728

ORDOVICIAN SYSTEM.

Gray lime—Gas show .....	at 800
Very dark lime .....	at 825, 870 and 900
Light gray lime .....	at 1045, 1100 and 1125
Top of Tyrone about .....	at 1200
Dove-colored lime .....	at 1230, 1235 and 1240
Light green sandstone .....	at 1245
Dove-colored lime .....	at 1250, 1330, 1400 and 1520
Bottom .....	at 1520

LOG No. 654.

J. R. C. LATHAM FARM.  
Near Rockcastle line.

Strata

Thickness

Depth

MISSISSIPPIAN SYSTEM.

Lime .....	125	125
Blue shale .....	175	300

DEVONIAN SYSTEM.

Brown shale .....	62	362
Lime—Oil show at 365 .....	3	365
Sand .....	110	475

## ROCKCASTLE COUNTY.

LOG No. 655.

## WELL NEAR MULLENS STATION.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sandstone (base of Pottsville) .....	100	100
<b>MISSISSIPPIAN SYSTEM.</b>		
"Big lime" .....	100	200
Sand .....	150	350
Shale .....	200	550
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	150	700
Sandy lime—"Ragland sand" .....	20	720
<b>SILURIAN SYSTEM.</b>		
Shale .....	30	750
Lime .....	740	1490

LOG No. 656.

**E. M. CUMMINS FARM**  
3 Miles W. of Mt. Vernon.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	80	80
Blue shale .....	230	310
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	70	380
"Fire-clay" (Shale) .....	14	394
White sand (?) .....	35	429
<b>SILURIAN SYSTEM.</b>		
"Fire clay" (Shale) .....	8	437
Lime .....	813	1250
(Base of Silurian not defined.)		

LOG No. 657.

**JAKE BRAY FARM.**  
4 Miles W. of Mt. Vernon.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	100	100
Blue shale .....	260	100
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	70	430
Lime .....	20	450
Lime and sand—Oil show at 453 .....	6	456
<b>SILURIAN SYSTEM.</b>		
Lime .....	14	470

LOG No. 658.

WILMER CHESNUT FARM  
3 Miles S. E. of Mt. Vernon.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	10	10
Lime .....	23	33
Blue slate .....	10	43
Lime .....	5	48
Clay .....	1	49
Lime .....	19	68
Blue slate .....	22	90
Lime .....	17	107
Blue shale .....	87	194
Lime .....	56	250
Blue shale .....	100	350
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	103	453
Fire-clay (Shale) .....	10	463
Lime .....	2	465
Sand—Oil show at 502 .....	62	527
<b>SILURIAN SYSTEM.</b>		
Lime .....	40	567
Sand—Oil show at 567 .....	11	578
Lime .....	5	583

LOG No. 659.

JOSIAH MEECE FARM.  
Skeggs Creek.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	120	120
Blue shale .....	10	130
Lime .....	8	138
Blue shale .....	205	343
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	70	413
"Fire-clay" (Shale) .....	14	427
Lime .....	32	459
<b>SILURIAN SYSTEM.</b>		
Yellow lime—Oil show .....	9	468
Lime .....	12	480

## LOG No. 660.

H. C. KIRBY FARM.  
Skeggs Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime—Oil show at 71 and 110.....	205	205
Blue shale—Gas show at 300.....	233	438
DEVONIAN SYSTEM.		
Black shale .....	70	508
"Fire-clay" (shale) .....	12	520
Sand(?) .....	45	565
SILURIAN SYSTEM.		
Lime .....	10	575

## LOG No. 661.

M. F. TREADWAY FARM.  
Cove Branch.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Blue shale .....	70	70
Lime .....	25	95
Blue shale .....	80	175
Lime .....	35	210
Blue shale .....	80	290
DEVONIAN SYSTEM.		
Brown shale .....	100	390
"Fire-clay" (shale) .....	16	406
Lime .....	32	409
SILURIAN SYSTEM.		
"Fire clay" (shale) .....	32	413
Sand—Oil show at 453 .....	53	466
Lime .....	45	511
Sand—Oil show at 511 .....	10	521
Lime .....	10	531

## LOG No. 662.

WELL NEAR JOHNETTA.  
Brush Creek.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Sand and gravel .....	30	30
Lime—"Big lime" .....	95	125
Blue shale .....	165	290
DEVONIAN SYSTEM.		
Black shale .....	115	405
Lime (Corniferous?) .....	10	415

SILURIAN SYSTEM.

Green shale .....	50	465
Lime .....	10	475
Gray shale .....	5	480
Lime .....	15	495
Gray shale .....	10	505
Lime .....	218	723
(Base of Silurian not defined.)		

LOG No. 663.

WELL NEAR CLIMAX.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Sand and soil .....	35	35
Quicksand .....	2	37
Lime .....	130	167
Blue slate .....	20	187
Red rock .....	8	195
Blue slate .....	14	209
White lime .....	15	224
Blue slate .....	116	340
Gray slate .....	10	450
DEVONIAN SYSTEM.		
Black shale .....	130	580
Lime—Ragland (?) .....	35	615
SILURIAN SYSTEM.		
Green slate .....	25	640
Hard sandy lime .....	5	645
Gray slate .....	5	650
"Second sand" .....	18	668
Slate .....	2	670

ROWAN COUNTY.

LOG No. 664.

BUTTS FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Brown sand .....	25	25
White lime (?) .....	125	150
White shale .....	80	230
White lime (?) .....	110	340
White shale .....	110	450
Brown shale (Sunbury?) .....	40	490
White sand (Berea?) .....	10	500

DEVONIAN SYSTEM.

Brown shale .....	190	690
White clay .....	5	695
Lime—salt water .....	100	795
Red rock .....	50	845
White shale .....	55	900
Lime .....	660	1560
(Base of Devonian not defined.)		

LOG No. 665.

WELL ON TRIPLETT CREEK.  
12 Miles N. E. of Morehead.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Blue shale .....	62	67
Black slate (Sunbury?) .....	10	77
Shale—gas at 171 .....	123	200
Red rock .....	6	206
DEVONIAN SYSTEM.		
Black shale (Devonian) .....	329	535
Lime—"Ragland sand"—oil and salt water .....	7	542

RUSSELL COUNTY.

LOG No. 666.

A. W. McCLOUD FARM.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Lime .....	365	365
Red sand .....	4	369
Lime .....	307	676
Light sand—black oil .....	12	688
Dark lime .....	62	750
Blue slate .....	130	880
Brown slate—"Pencil cave" .....	20	900
Blue lime .....	30	930

LOG No. 667.

A. W. McCLOUD FARM.

Strata	Thickness	Depth
ORDOVICIAN SYSTEM.		
Dark lime .....	655	655
Light sand .....	8	663
Gray lime .....	176	839
White lime .....	58	897
"Pencil cave" .....	2	899
Gray lime .....	92	1591
Light sand—salt water .....	35	1626

(Both McCloud wells start just below the Black Shale).

# DRILLED WELLS—RUSSELL COUNTY

499

LOG No. 668.

## JOHN JOHNSON FARM.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Black shale .....	20	20
ORDOVICIAN SYSTEM.		
Blue lime—salt water at 100.....	670	690
Sand .....	10	700
Gray lime .....	155	855
"Pencil cave" .....	3	858
Dark lime .....	642	1500

LOG No. 669.

## F. A. BOLIN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Gray lime .....	123	123
Dark sand .....	4	127
Light slate .....	131	258
DEVONIAN SYSTEM.		
Black shale (Devonian) .....	30	288
Gray lime—gas at 970.....	682	970
White sand .....	10	980
Brown lime .....	130	1110
Base of Devonian indefinite.		

LOG No. 670.

## G. B. WALTON FARM.

Strata	Thickness	Depth
DEVONIAN SYSTEM.		
Soil .....	6	6
Black shale .....	44	50
ORDOVICIAN SYSTEM.		
Gray lime .....	10	60
Dark sand .....	20	80
Gray lime .....	638	718
White sand .....	9	727
Gray lime .....	113	840
"Pencil cave" .....	5	845
Black lime .....	55	900

## TAYLOR COUNTY.

LOG No. 671.

CAMPBELLSVILLE WELL.  
DAVIS FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	12	12
Hard lime .....	100	112
Soft lime .....	63	175
Brown lime .....	35	210
Gray slate .....	111	321
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	52	373
<b>ORDOVICIAN SYSTEM.</b>		
Lime .....	327	700
Slate and lime shells .....	300	1000
"Rubber" rock* .....	7	1007
Slate .....	53	1060
Lime .....	130	1190
Slate .....	30	1220
Lime .....	30	1250
Slate .....	20	1270
Lime .....	25	1295
Slate .....	5	1300

\*Driller's name.

LOG No. 672.

## A. HUBBARD FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Clay .....	4	4
Lime .....	166	170
<b>DEVONIAN SYSTEM.</b>		
Black shale (Devonian) .....	50	220
<b>ORDOVICIAN SYSTEM.</b>		
Lime .....	980	1200

LOG No. 673.

## VAN DYKE FARM.

Tallow Creek.  
(Partial record).

Strata	Feet		Feet
Devonian shale .....	99	to	135
Lime—oil show at 161 and 246.....	135	to	300

# DRILLED WELLS—UNION COUNTY

531

LOG No. 674.

ANDY LAWLER FARM.

Pittman Creek.

2½ miles S. E. of Finney.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Shale .....	210	215
DEVONIAN SYSTEM.		
Back shale (Devonian) .....	51	266
ORDOVICIAN SYSTEM.		
Lime .....	10	276
Note:—Silurian absent under Taylor County.		

## UNION COUNTY.

LOG No. 675.

WELL AT UNIONTOWN.

Strata	Thickness	Depth
RECENT.		
Soil .....	110	110
PENNSYLVANIAN SYSTEM.		
Sandstone .....	10	120
Coal .....	1	121
Sandstone .....	26	147
Coal—No. 11 .....	6	153
Sandstone .....	9	162
Clay and slate .....	20	182
Coal .....	2	184
Gray slate .....	48	232
Lime .....	100	242
Slate .....	43	285
Coal—No. 9 .....	8(?)	293
Lime .....	6	299
Slate .....	64	363
Coal .....	10(?)	373
Slate .....	60	433
Sand .....	40	473
Slate and shale .....	40	513
Lime .....	8	521
Sand—salt water .....	12	533
Slate .....	28	561
Coal .....	6(?)	567
Slate .....	19	586
Lime .....	15	601
Black shale .....	25	626
Lime .....	5	631
Sand .....	30	661
Sand—salt water .....	25	686

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OIL AND GAS RESOURCES OF KENTUCKY

Slate .....	15	701
Sand .....	30	731
Slate .....	35	766
Sand .....	30	796
Slate .....	35	831
Sand .....	33	864
Slate .....	42	906
Sand .....	35	941
Slate .....	59	1000
Lime .....	8	1008
Coal .....	2	1010
Slate and sand .....	77	1087

LOG No. 676.

WELL RECORD.

Sol Blue Wel, No. 1, one mile east of Spring Grove, Union Co., Ky.

Strata	Thickness	Depth	Remarks.
RECENT.			
Loam .....	16		
Quicksand .....	8	24	
PENNSYLVANIAN SYSTEM.			
Slate .....	14	38	Water 37 ft.
Quicksand .....	23	62	
Blue mud .....	26	88	
Quicksand .....	11	99	Water all through
Clay .....	31	130	
Slate .....	26	156	
Lime .....	31	187	Gritty
Coal No. 9 .....	2	189	
Slate .....	16	205	
Sand .....	24	229	Hard and gritty
Lime .....	15	244	
Coal .....	6	250	
Sand .....	15	265	Sharp
Slate .....	16	281	
Sand .....	31	312	Hard
Slate .....	13	325	
Coal .....	5	330	Show of oil and gas in coal
Slate .....	71	401	
Coal .....	5	406	
Slate .....	47	453	
Sand .....	63	516	White and hard
Slate .....	25	541	
Sand .....	21	562	
Slate .....	51	613	
Sand .....	43	656	Hard
Slate .....	74	730	

# DRILLED WELLS—UNION COUNTY

503

Coal .....	6	736	
Slate .....	107	843	
Sand .....	101	944	(Water, 858 ft. Nice show of oil 883 ft. Hole full of salt water 898ft.)
Slate .....	99	1043	
Coal .....	2	1045	Bell
Lime .....	6	1051	
Slate .....	11	1062	
Lime .....	17	1079	Gritty
Sand .....	73	1152	Water 1083 ft.
Slate .....	73	1225	
Sand and shells .....	19	1244	
Sand .....	105	1349	Water 1315 ft.
MISSISSIPPIAN SYSTEM.			
Slate .....	30	1379	
Sand .....	22	1401	Broken
Slate .....	5	1406	
Sand .....	10	1416	Hard
Slate .....	5	1421	
Lime .....	5	1426	Hard and light
Slate .....	17	1443	
Sand .....	31	1474	Hard and close
Lime .....	26	1500	Hard and light brown
Sand .....	39	1539	(Nice show of oil at 1510 ft. Rainbow from this sand on water running over the top of 8 inch casing.)
Slate, black .....	4	1543	
Lime .....	3	1546	
Slate .....	11	1557	
Lime .....	3	1560	Hard and dark
Slate .....	10	1570	Hard and dark
Lime .....	5	1575	Hard and dark
Slate .....	7	1582	
Lime .....	30	1612	Hard and dark
Slate .....	4	1616	
Lime .....	16	1632	Hard and dark
Pink cave .....	10	1642	(Caved very bad; had to cement)
Lime .....	24	1666	Hard and dark
Slate .....	6	1672	Hard and dark
Lime .....	8	1680	Hard and dark
Slate .....	18	1698	
Sand gray .....	14	1712	(Sand smelt oily, but was broken sand)
Slate .....	11	1743	

Sand .....	25	1748	(Nice show of oil from 1725 ft. to 1730 ft. Sand hard and white)
Slate .....	5	1753	Black and caves
Lime .....	3	1756	Dark
Lime .....	11	1767	White and hard
Slate .....	34	1800	
Sand .....	24	1824	(Nice show of oil first screw in sand, sand very hard)
Sand shells .....	27	1851	
Lime .....	43	1894	Hard and gray
Sand .....	5	1899	(Sand very hard, nice show of oil)
Slate .....	19	1918	
Red rock .....	4	1922	Caves
Slate .....	27	1949	Caves

Sand, top 1949 ft. Nice show of oil from 1952 ft. to 1962 ft., sand very hard and sharp.

Two eight inch bailers of water from 1967 ft. to 1978 ft. Hole full of water at 1984 ft.

Water was plugged off at 1967 ft., with Robison plug and lead, shot loosed plugs and hole filled up with water after shot.

Well was drilled by the Betty B. Oil & Gas Co.  
(Base of Pottsville indefinite.)

WARREN COUNTY.

LOG No. 677. WELL AT BOWLING GREEN  
(From drillings).

MISSISSIPPIAN SYSTEM.

White oolite.	
Gray lime .....	at 18, 25 and 30
Light gray oolite .....	at 36
Fine-grained white lime .....	at 42 and 46 to 70
Light gray lime .....	at 77, 90, 94 and 98
White lime .....	at 100
Light brown lime .....	at 106
Light gray lime .....	at 112, 117, 130, 135, 144 and 156 to 170
Dark gray lime .....	at 183
Gray lime shale .....	at 189
Dark gray lime .....	at 195, 205 and 210 to 230
Black lime .....	at 235
Dark gray lime .....	at 240
Light brown lime .....	at 253
Gray lime .....	at 255 and 260
Dark lime .....	at 265
Brown lime .....	at 270

Dark gray lime .....	at 278 and 284
Brown lime .....	at 287
Gray lime .....	at 288, 290, 294, 300, 305, 310 and 315
Very dark lime .....	at 325 and 330
Gray lime—oil at 363.....	at 340, 348, 350 and 358 to 380
Gray lime shale .....	at 400 to 420
Gray lime .....	at 425 and 430
Gray lime and shale .....	at 435, 440, 445 and 450
Gray and white limes .....	at 455
Gray lime and shale .....	at 460 and 465
Gray and white lime .....	at 470
Gray lime .....	at 475
Gray lime and white shale .....	at 485
Dark limy shale .....	at 490 to 501
Gray lime and limy shales .....	506, 510 and 515
Gray limy shale .....	at 520 to 530
Dark lime and limy shales .....	at 535 to 665
Black slate .....	at 670 to 680
Very dark limy shale .....	at 685
Brown impure lime .....	at 690
Dark impure lime .....	at 695 and 700
Gray and white lime .....	at 705

#### DEVONIAN SYSTEM.

Black shale .....	at 708 to 760
Dark brown sandy lime .....	at 765 and 770
Mixed back, white and gray limes .....	at 775
Fine-grained white lime .....	at 780

#### SILURIAN SYSTEM.

Fine-grained yellowish lime .....	at 785 and 790
Fine-grained white lime .....	at 795 to 875
Gray lime .....	at 880 to 890
Very light lime .....	at 895 and 900
Gray lime .....	at 910
Light lime .....	at 915 to 935
Mottled red lime .....	at 940

#### ORDOVICIAN SYSTEM.

Gray lime .....	at 945 and 950
Light and gray limes .....	at 955, 960, 965, 975 and 980
Gray lime and shale .....	at 985
Mottled gray and white lime .....	at 990
Gray lime .....	at 995 to 1010 and 1015
Light lime .....	at 1020 and 1025
Gray lime and shale .....	at 1030 to 1095
Light and gray limes .....	at 1100 to 1185
White lime .....	at 1190
Gray limes .....	at 1195 to 1420
Dark limy shale .....	at 1425

Gray lime .....	at 1430 to 1440
Black and white limes .....	at 1445
Gray lime .....	at 1450 to 1460
Brown lime .....	at 1465
Gray lime .....	at 1470 to 1595
Light lime .....	at 1600 to 1605
Dark and light limes .....	at 1610 to 1660
Light dove-colored lime (top of Tyrone) .....	at 1660 to 1670
Gray and light limes .....	at 1685 to 1715
Very dark lime .....	at 1720 to 1730
Black lime .....	at 1735
Dark brown lime .....	at 1740 and 1745
Black lime .....	at 1750
Dark brown lime .....	at 1755
Gray lime .....	at 1760 and 1765
Very dark lime .....	at 1770
Gray lime .....	at 1775
Very dark lime .....	at 1780

LOG No. 678.

STAHL FARM.

West of Bowling Green.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	4	4
White lime .....	211	215
Brown lime—black sulphur water at 295....	85	300
White lime .....	150	450
Brown lime—"Blue Lick" water at 560..	110	560
Lime .....	40	600
Blue shale .....	5	605
Hard lime .....	10	615
White lime .....	85	700
White shale .....	1	701
Brown lime .....	149	850
White lime .....	60	910
Blue lime .....	35	945
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	110	1055
Brown lime .....	10	1065
<b>SILURIAN SYSTEM.</b>		
White lime .....	5	1070
Blue lime .....	25	1095
Cream-colored lime—oil .....	10	1105
Brown lime .....	6	1111
Cream-colored lime—oil .....	10	1121
Broken lime .....	19	1140
Very fine sand (lime?) .....	3	1143

# DRILLED WELLS—WARREN COUNTY

537

LOG No. 679.

## LARMON WELL No. 1.

Near Alvaton

Strata	Thickness	Depth	Remarks
<b>MISSISSIPPIAN SYSTEM.</b>			
Clay .....	25	25	
Limestone .....	30	55	
Lime shells .....	20	75	
Slate .....	5	80	
Soapstone .....	3	83	
Limestone .....	20	103	
Limestone .....	7	110	
Sandy lime .....	5	115	Little gas
Limestone .....	45	160	
Lime shells .....	40	200	
Sand shells .....	15	215	Cased 6 1/4 casing
Brown lime .....	28	243	Gas, oil and salt
Sandy lime .....	12	255	water 1 pt.
Limestone .....	4	259	12 hrs.
Shale .....	10	269	
Limestone .....	14	283	
Shale, sandy .....	45	328	
Limestone .....	6	334	
Shale, sandy .....	11	345	Mixed with
Limestone .....	11	356	hard shells
Slate pencil .....	19	375	Not black
Lime, shelly .....	23	398	Flinty shells
Slate .....	7	405	
Sand shells .....	15	420	Mixed with
Slate .....	4	425	flinty shells
Limestone .....	45	470	
Lime shells .....	5	475	
Slate and shells .....	70	545	Mixed with lime
Limestone .....	12	557	
Shale .....	6	563	
Lime shell .....	1	564	
<b>DEVONIAN SYSTEM.</b>			
Shale .....	20	584	
Shale .....	29	612	Top of oil
Limestone .....	4	616	Sand oil 616
Lime, sandy .....	20	636	
<b>SILURIAN SYSTEM.</b>			
Limestone .....	14	650	
Limestone, sandy .....	5	655	Should be 2d pay
Limestone .....	5	660	

Limestone, sandy .....	5	665	
Soapstone and sand .....	14	679	
Limestone .....	4	683	
Limestone .....	5	688	
Limestone .....	4	692	
Shale sandy .....	32	724	Well finished

LOG No. 680.

## LUTHER JACKSON FARM.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
White lime .....	35	35
Gray lime .....	105	140
White lime .....	120	260
Gray lime .....	315	575
Blue lime .....	90	665
Gray lime .....	30	695
Blue lime .....	315	1010
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	102	1112
Gray lime—oil show .....	56	1168
<b>SILURIAN SYSTEM.</b>		
Light brown lime .....	10	1178
Gray lime .....	15	1193
Brown lime .....	8	1201
Light gray lime—oil show .....	7	1208
White lime .....	6	1214
Light gray lime .....	25	1239
White lime .....	5	1244
Light gray lime .....	28	1272
Gray lime .....	30	1302
Brown lime .....	33	1335
Gray lime with blue shale streaks.....	240	1575
Red rock .....	10	1585
<b>ORDOVICIAN SYSTEM.</b>		
Soft broken lime .....	305	1890
Hard blue lime .....	98	1988
Brown sand .....	4	1992
Hard brown lime .....	5	1997
Dark blue shale .....	10	2007
Blue lime .....	31	2038

LOG No. 681.

E. HARRIS WELL No. 1.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	5	5
Lime .....	80	85
Slate .....	85	170
Lime .....	10	180
Slate .....	32	212
Brown sand .....	8	220
Slate .....	45	265
Gray sand .....	11	276
Black slate .....	4	280
"Oil sand"—oil show at 285.....	120	400
Slate .....	65	465
Gray sand .....	55	520
Black slate .....	194	714
DEVONIAN SYSTEM.		
Brown slate .....	76	790
"Cap" rock .....	4	794
White lime .....	28	822
"Oil sand" .....	4	826
SILURIAN SYSTEM.		
Lime .....	50	876
Lime and shale .....	76	952

LOG No. 682.

BATES FARM.

(Partial record).

MISSISSIPPIAN SYSTEM.

Oil show .....	at 230
Oil show .....	at 280
White lime .....	at 340
White lime and gas .....	at 383
Gray lime .....	at 405
Green shale—gas .....	at 446

DEVONIAN SYSTEM.

Black shale .....	at 492
Cap rock—gas .....	at 554
Oil sand .....	at 564
Blue lime .....	at 569
"Salt sand" .....	at 574
2d "salt sand" .....	at 579
Gray lime .....	at 589
"3d sand" .....	at 594

SILURIAN SYSTEM.

Bottom .....	at 640
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LOG No. 683.

**GARRISON FARM.**  
**East of Bowling Green.**

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	27	27
Lime .....	105	132
"Gas sand" .....	5	137
Lime .....	63	200
"Gas sand" .....	10	210
Lime .....	135	345
Green slate .....	37	382
Broken lime .....	8	390
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	60	450
Brown lime .....	4	454
White lime .....	8	462
Brown lime—gas .....	28	490
<b>SILURIAN SYSTEM.</b>		
White lime .....	8	498
Brown lime .....	12	510
Gray lime .....	15	525
Brown lime—oil .....	12	537
Gray lime .....	45	582
Brown lime .....	8	590
Gray lime .....	10	600

LOG No. 684.

**B. F. AMOS FARM.**  
**Near Oak'and.**

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Red clay .....	14	14
Lime .....	156	170
Sand .....	25	195
Lime .....	76	271
Slate .....	6	277
Lime .....	233	510
Slate .....	12	522
Lime .....	118	640
<b>DEVONIAN SYSTEM.</b>		
Brown shale .....	82	722
Lime .....	102	824
Sand—gas .....	24	848
Lime .....	177	1025
Red rock .....	44	1069

ORDOVICIAN SYSTEM.

Lime .....	273	1342
Slate .....	116	1458
Lime .....	19	1477
Slate .....	6	1483
Lime .....	67	1550
Trenton* .....	59	1609

\*Driller's distinction.

LOG No. 685.

THE ROBERT HURD WELL.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	6	6
Broken stone .....	10	16
Yellow limestone .....	37	53
White limestone .....	42	95
White limestone .....	261	356
Brown limestone .....	50	406
White limestone .....	24	430
Blue limestone .....	50	480
Blue limestone fossils .....	180	660
Blue shale .....	52	712
Blue limestone fossils .....	33	745
White limestone .....	6	751
Dark shells .....	66	817
Lighter shells .....	68	875
Gray limestone .....	71	946
DEVONIAN SYSTEM.		
Black shale .....	185	1101
Grey limestone .....	10	1141
White limestone .....	5	1146
Gray limestone .....	22	1168
Dark limestone .....	15	1183
Gray limestone .....	20	1203
Darker gray limestone .....	35	1238
Gritty limestone .....	30	1268
Darker limestone .....	15	1283
White limestone .....	5	1288
Broken limestone .....	46	1334
Showed oil at 1163		
Showed oil at 1183		
Showed oil at 1185		

## LOG No. 686

## BUNCH WELL—No. 1.

Elevation 530 ft.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	10	10
Gray limestone .....	523	538
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	60	598
Blue limestone .....	6	604
Lime sand .....	10	614

## LOG No. 687.

## HUNT WELL.

Elevation 637 ft.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Soil .....	12	12
White limestone .....	521	533
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	64	597
Blue limestone .....	6	602
Lime sand .....	8	610
Dark limestone .....	126	736

## LOG No. 688.

## BATES WELL.

Elevation 608 ft.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
White limestone .....	25	25
Gray limestone .....	423	448
Green shale .....	47	495
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	60	555
Blue limestone .....	5	560
Lime sand .....	10	570
Gray limestone .....	35	605
Blue clay .....	5	610
Gray limestone .....	30	640

## LOG No. 689.

## A. M. KIRBY WELL.

Strata	Thickness	Depth
<b>MISSISSIPPIAN SYSTEM.</b>		
Blue limestone .....	6	6
Flint .....	24	30
Gray limestone .....	15	45
Blue limestone .....	63	108
Yellow shale .....	8	116

Blue limestone .....	4	120
Gray limestone .....	30	150
Blue limestone .....	25	175
Gray limestone .....	49	224
Brown limestone .....	41	265
Lighter limestone .....	20	285
White limestone .....	35	320
Light gray limestone .....	15	335
White limestone .....	10	345
Blue limestone .....	35	400

DEVONIAN SYSTEM.

Black shale .....	40	440
Blue lime .....	63	503
Lime sand .....	12	515
Blue limestone .....	10	525
Lime sand .....	15	540
Blue limestone .....	10	550
Lime sand .....	20	570
Blue limestone .....	15	580

Gas well.

LOG No. 690.

MOODY WELL.  
Elevation 518 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	366	
DEVONIAN SYSTEM.		
Black shale .....	50	416
Blue limestone .....	8	424
Lime sand .....	7	431
Brown limestone .....	15	446
Lime sand .....	20	466

LOG No. 691.

SANSON WELL.  
Elevation 529 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
White limestone .....	363	
DEVONIAN SYSTEM.		
Black shale .....	52	415
Blue limestone .....	8	423

Thickness of sands not given.

LOG No. 692. EWING WILLOWBY WELL—No. 2.  
Elevation 576 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	329	
DEVONIAN SYSTEM.		
Black shale .....	51	380
Bottom of well.....		414

LOG No. 693. JEFF WILLOWBY WELL.  
Elevation 520 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	251	
DEVONIAN SYSTEM.		
Black shale .....	21	272
Blue lime .....	10	282
Thickness of sands not given.		

LOG No. 694. EDWIN WILLOWBY WELL.  
Elevation 610 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	360	
DEVONIAN SYSTEM.		
Black shale .....	63	413
Blue limestone .....	81	421
SILURIAN SYSTEM.		
Brown limestone .....	14	435
Lime sand .....	17	452
Limestone .....	132	584
Lime sand .....	29	613

LOG No. 695. MANSFIELD WILLOWBY WELL.  
Elevation 520 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	205	205
Green shale .....	35	240
DEVONIAN SYSTEM.		
Black shale .....	55	295
Lime sand .....	15	310
Hard blue limestone .....	40	350
SILURIAN SYSTEM.		
Slate .....	20	370
Limestone .....	30	400
Slate .....	2	402

# DRILLED WELLS—WARREN COUNTY

55

LOG No. 696.

A. T. DIGGINS WELL.

Elevation 518 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	380	
DEVONIAN SYSTEM.		
Black shale .....	50	430
Lime sand .....	3	433
Well not completed.		

LOG No. 697.

DUNCAN WELL.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	850	850
Brown shale .....	40	890
Black shale .....	140	1030
White limestone .....	50	1080
Grey limestone .....	5	1085
White limestone .....	15	1400
Lime sand .....	8	1108
White limestone .....	10	1118
Dark limestone .....	13	1131
Lime sand .....	14	1145
Blue limestone .....	11	1156
Red rock .....	5	1161
Brown limestone .....	24	1185
(Base of Mississippian indefinite.)		

LOG No. 698.

MEEKS WELL—No. 1.

Elevation 580 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	359	309
DEVONIAN SYSTEM.		
Black shale .....	50	409
Blue limestone .....	11	420
Lime sand .....	9	429

LOG No. 699.

MEEKS WELL—No. 2.

Elevation 589 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	377	
DEVONIAN SYSTEM.		
Black shale .....	51	428
Blue limestone .....	13	441
Lime sand .....	8	449

516 OIL AND GAS RESOURCES OF KENTUCKY

LOG No. 700.

MEEKS WELL—No. 3.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	300	
DEVONIAN SYSTEM.		
Black shale .....	41	351
Blue limestone .....	15	366
Lime sand .....	29	395

LOG No. 701.

CHANDLER WELL.

Elevation 436 ft.

Strata	Thickness	Depth
(Partial record).		
MISSISSIPPIAN SYSTEM.		
Limestone .....	420	420
DEVONIAN SYSTEM.		
Black shale .....	60	480

LOG No. 702.

PHINNEY WELL.

Elevation 517 ft.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Limestone .....	152	
Green shale .....	54	206
DEVONIAN SYSTEM.		
Black shale .....	64	270
Blue limestone .....	7	277
Lime sand .....	40	317
Blue mud .....	3	320

WAYNE COUNTY.

LOG No. 703.

J. A. BROWN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Soil .....	35	35
White lime .....	165	200
Hard black sand—gas at 335.....	138	338
Soft black slate .....	2	340
White sand—gas .....	2	342
Black lime .....	8	350
White lime—gas .....	50	400
Black slate .....	75	475
White lime .....	10	485

# DRILLED WELLS—WAYNE COUNTY

517

Black slate .....	5	490
White sand .....	12	502
White lime .....	48	550
Blue slate .....	30	580
"Beaver" sand—oil .....	8	588
Blue slate .....	2	590

LOG No. 704.

## DISHMAN WELL.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
White lime .....	170	170
White sand .....	100	270
Lime .....	310	580
Sand ("Beaver") .....	30	610
DEVONIAN SYSTEM.		
Black shale .....	35	645
Slate and shells .....	35	680
SILURIAN SYSTEM.		
Lime .....	120	800
Slate and red rock .....	20	820
Soft slaty lime .....	448	1268
Slate and shells .....	28	1296
Black "pencil cave" .....	4	1300
Slate and shells.....	30	1320
White "cave" .....	5	1325
(Base of Silurian not defined.)		

LOG No. 705.

## H. McBEATH FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime and shales .....	764	764
"Beaver" sand .....	8	772
Lime .....	50	822
DEVONIAN SYSTEM.		
Black shale .....	35	857
Lime .....	803	1660
White slate (top of Tyrone) .....	3	1663
Dark brown lime .....	277	1940
Lime shells and slate .....	260	2200
Dark brown lime .....	30	2230
Dark and light limes.....	170	2400
Flint shells .....	30	2430
White salt sand (Calciferous?) .....	5	2435
(Base of Devonian not defined.)		

## LOG No. 706.

## J. W. BARNES FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Lime .....	254	254
Gray slate .....	140	394
Gray and white lime and slate .....	46	440
DEVONIAN SYSTEM.		
Black shale .....	40	480
Blue lime.....	100	580
"Pepper and salt" lime .....	300	880
Brown lime .....	200	1080
Blue slate .....	10	1090
Dark lime .....	200	1290
Brown flint (lime?) (top of Tyrone).....	60	1350
Blue lime .....	540	1890
White sand—oil show .....	25	1915
Brown flinty lime .....	15	1930
Light brown sand .....	5	1935
White lime .....	10	1945
Lime .....	10	1955
White salt sand (Calcliferous?) .....	26	1981
(Top of Silurian indefinite in blue lime 100 feet.)		

## LOG No. 707.

## CYRUS BROWN FARM.

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
White lime .....	175	175
Dark lime—gas at 205 .....	69	244
White lime .....	55	299
Black lime—gas at 305 .....	30	329
Dark lime .....	40	369
White lime .....	136	505
Dark slate .....	25	530
Hard shell .....	10	540
"Beaver sand" .....	13	553
DEVONIAN SYSTEM.		
Dark shale (Devonian) .....	40	593
Dark sand .....	15	608
SILURIAN SYSTEM.		
Dark lime .....	477	1085
Brown lime .....	210	1295
Dark lime .....	45	1340
Dark flint .....	5	1345
Dark lime .....	152	1497
(Top of Ordovician not defined, in 477.)		

# DRILLED WELLS--WEBSTER COUNTY

519

LOG No. 708.

## JAMES RUMSEY FARM.

Gas well.

(Partial record).

Strata	Feet
<b>MISSISSIPPIAN SYSTEM.</b>	
"Blue Lick" water	at 165
Heavy gas flow .....	at 225
Light gas flow	at 310
"Stray" sand	at 338
Slate .....	at 423
"Beaver" sand .....	at 430
Blue shale and shell.....	at 453
<b>DEVONIAN SYSTEM.</b>	
Black shale (Devonian) .....	at 466

## WEBSTER COUNTY.

LOG No. 709.

7 miles N. of Dixon at Pliden.

Lessor, W. A. Duncan. Lessee, Sarber & Dearolph.

Started October 17, 1910. Completed April, 1911.

Total Depth, 1920—Authority, C. E. Dearolph.

Strata	Top	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Conductor (top soil), etc.....	0	11
Hard pan, water, etc.	11	50
Slate	50	165
Coal	165	167
Slate .....	165	185
Coal	185	187
Slate	187	300
Sand	300	340
Slate	340	345
Coal	345	352
Shale .....	353	440
Sand, sharp	440	460
Shale .....	460	617
Coal	617	622
Shale	622	695
Sand and fresh water	695	750
Shale	750	840
Coal	840	844
Shale .....	844	940
Sand, sharp (light oil showing at 945, water at 950) .....	940	958
Lime, shells and shale .....	958	1095
Sand, very sharp (fresh water at 1115)....	1095	1322

## MISSISSIPPIAN SYSTEM.

Lime and slate .....	1322	1372
Sand rock (salt water plenty) .....	1372	1410
Slate and shells (1480 bad cave-in) .....	1410	1500
Black slate .....	1500	1514
Stray lime .....	1514	1519
Slate and shells .....	1519	1920

Sand at 1920 filled with salt water.

## LOG No. 710.

WELL SOUTH OF SEBREE.  
(Partial record).

Strata	Top		Depth
PENNSYLVANIAN SYSTEM.			
Dark shale .....	75	to	315
Gray sand .....	315	to	550
MISSISSIPPIAN SYSTEM.			
Gray limestone .....	550	to	695
Gray limestone .....	960	to	1016
Gray limestone .....	1060	to	1070
Sand .....	1110	to	1210
Dark limestone—oil show .....		at	1715
Dove-colored limestone .....		at	1934
Gray limestone .....	1934	to	1940
Shaly limestone .....	1940	to	1946
Dark limestone .....	1946	to	2081
Dark shale .....	2081	to	2093
Gray limestone .....	2093	to	2107
Very dark limestone .....	2107	to	2226
Dark sandy limestone .....	2226	to	2232
Gray limestone .....	2232	to	2260
Dark limestone .....	2260	to	2275
White limestone .....	3058	to	3064

Poor record; base of Mississippian, top of Devonian, top of Silurian, and top of Ordovician not defined.

## LOG No. 711.

WELL NEAR TILDEN.  
(Partial record).

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	28	28
Sandstone .....	25	53
Blue shale .....	87	140
Sand and slate .....	16	156
Coal .....	6	162
Fire-clay .....	5	167

# DRILLED WELLS—WEBSTER COUNTY

521

Sandstone .....	13	180
Slate .....	9	189
Sand—oil show .....	13	202
Sand and slate.....	5	207
Coal .....	1	208
Sand .....	46	254
Slate and sand .....	47	301
Black slate .....	3	304
Coal .....	6	310
Fire-clay .....	3	313
Sand .....	7	320
Sand .....	10	330
Slate and shale .....	29	359
Coal .....	2	361
Sand .....	45	406
Sand and slate .....	5	411
Slate .....	65	476
Black slate .....	10	486
Sand .....	10	496
Shale .....	40	536
Sand .....	35	571
Shale .....	40	611
Sand—oil show .....	55	666
Sand and slate .....	25	691
White sand—salt water .....	60	751
Sand and slate .....	20	771
Sand .....	10	781
Slate .....	48	829
Coal .....	5	834
Fire clay .....	4	838
White sand .....	35	873
Sand and shale .....	35	908

## MISSISSIPPIAN SYSTEM.

Lime and sand .....	12	920
Slate .....	31	951
Sand .....	30	981
Sand and slate .....	75	1056
White sand .....	276	1332
Black sand .....	10	1342
Sandy shale ..	20	1362
Lime and sand .....	67	1429

At 1600 reported strong oil show in sand. Well spooled by reaming. A very poor record.

## LOG No. 712.

## WELL AT SEBREE.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay and sand	52	52
<del>Sand</del>	6	58
Shale ....	66	124
Sand	58	182
Slate	33	215
Coal .....	1	216
Fire clay	5	221
Lime	8	229
Sandy shale	27	256
<del>Slate</del>	6	262
Coal	1	265
<del>Slate</del> .....	40	306
<del>Sand</del> .....	29	334
Sandy shale .....	75	409
Shale .....	15	424
<del>Sand</del> .....	15	439
<del>Slate</del> .....	20	459
Sandy shale	5	464
Black shale	28	492
Lime	2	494
Coal	3	496
Shale .....	24	519
Sand .....	6	525
Shale .....	2	527
Sand—oil, gas and salt water .....	62	589
MISSISSIPPIAN SYSTEM.		
Shale .....	3	592

## McCREARY COUNTY.

## LOG No. 713.

## WELL AT PINE KNOT.

(From drillings).

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Sand ..	55	55
Coal	$\frac{1}{2}$	
<del>Sand</del>	28	83
Slate ....	11	93
Sand	112	205
Slate .....	10	215
Sand	95	310
<del>Slate</del>	10	320
Slate and sand	10	330
<del>Sand</del> .....	5	335
Slate	5	340

# DRILLED WELLS—McCREARY COUNTY

523

Sand .....	5	345
Slate .....	25	370
Sand .....	50	420
Slate ....	20	440
Sand .....	61	501
Coal .....	3½	504
Slate .....	56	560
Slate and sand .....	10	570
Sand .....	10	590
Slate ....	32	612
Sand .....	23	635
Slate ....	7	642
Sum .....	13	655
Slate .....	20	675
Sand .....	10	685
Slate .....	25	710
Sand and slate .....	12	722
Slate .....	19	741
Coal .....	6	747
Slate and sand .....	13	760
Slate .....	7	767
Sand .....	8	775
Slate and sand .....	10	785
Sand .....	15	800
Black slate—base of Pottsville .....	7	807
MISSISSIPPIAN SYSTEM.		
Red sand .....	11	818
Dark slate .....	3	821
Sand .....	6	827
Dark lime ..	20	847
Brown, limy shale .....	8	855
Dark blue slate ..	7	862
Reddish lime .....	4	866
Light brown limy shale .....	10	876
Dark blue slate ..	4	880
Light brown limy shale ..	5	885
Gray limy shale and blue slate .....	15	900
Dark lime .....	55	955
Light oolitic lime .....	20	975
Dove-colored lime .....	5	980
Dark lime and shale .....	5	985
Light lime .....	20	1005
Dark lime and shale .....	30	1035
Dark dove colored lime ..	20	1055
White and brown limes and black slate ....	20	1075
Light brown lime .....	5	1080
Gray shale .....	5	1085
Brown lime .....	20	1105

Dove-colored and white limes .....	190	1295
Light brown lime .....	5	1300
Light green, sandy lime .....	5	1305
Light brown, sandy lime—oil show .....	15	1320
Dark lime and slate .....	10	1330
Gray lime .....	20	1350
Dark limy sand .....	10	1360
Brown impure lime .....	10	1370
Dark limy slate .....	10	1380
Very dark lime .....	30	1410
Dark limy slate .....	5	1415
Dark lime .....	5	1420
Dark slate .....	8	1428
White and gray lime .....	12	1440
Light lime .....	30	1470
Gray and white limes .....	20	1490
Dark and white sands .....	5	1495
Gray and white sands and sandy limes....	65	1560
Soft shale .....	5	1565
Gray sandy lime .....	5	1570
Dark limy shale .....	30	1600
DEVONIAN SYSTEM.		
Black shale .....	15	1615
Dark brown shale .....	15	1630
Black shale } (Devonian) .....	5	1635
Dark brown shale } .....	5	1640
Black shale } .....	5	1645
SILURIAN SYSTEM.		
Dark green shale .....	30	1675
Greenish shale with lime and red shale streaks .....	45	1720
Red iron ore (Clinton?) at 1720.		
Iron ore, dark shale and lime .....	15	1735
Dark limy shale .....	7	1742
Dark lime and shales .....	43	1785
ORDOVICIAN SYSTEM		
Dark lime .....	55	1840
Dark gray and reddish limes .....	40	1880
Dark and light limes and dark slate.....	35	1915
Dark reddish lime .....	25	1940
Dark gray lime .....	35	1975
Dark gray and white lime .....	305	2280
Dark slate .....	10	2290
Dark gray and white limes .....	102	2392
Blue and white limes and gray shale .....	18	2410
Light gray shale .....	12	2422
Gray lime .....	30	2452
Grayish brown and white limes .....	59	2511

# DRILLED WELLS—WHITLEY COUNTY

525

LOG No. 714.

WELL AT STEARNS.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Shale .....	335	335
White sandstone .....	30	365
Shale .....	25	390
White sandstone .....	10	400
Coal ..	1½	401
Shale .....	38	440
Sandstone ..	70	510
Blue and gray slate ..	15	525
White sandstone .....	10	535
Slate .....	20	555
White sandstone .....	10	565
Slate .....	5	570
White sandstone ....	20	590
Slate .....	40	630
Coal .....	3½	634
Shale .....	11	645
Slate .....	12	657
Red iron ore (?)	11	670
White sand .....	11	681

## WHITLEY COUNTY.

LOG No. 715.

J. P. SHARP FARM.

Rockhold Station.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	14	14
Black shale .....	36	50
White lime ..	5	55
Coal ..	1½	56
Blue slate .....	88½	145
White sand .....	10	155
Black slate .....	30	185
White sand .....	20	205
Black slate ..	110	315
Gray sand .....	190	505
Black slate .....	40	545
White sand .....	165	710
Black slate .....	30	740
White sand—oil show	230	970
Black slate ..	35	1005
Sand .....	26	1031
Coal .....	2	1033
Black slate .....	4	1037
White sand .....	5	1042
Black shale--base of Pottsville .....	15	1057

MISSISSIPPIAN SYSTEM.

White lime .....	5	1062
Black shale .....	4	1066
White sand .....	25	1091
White shale .....	60	1151
White lime .....	54	1205
White shale .....	50	1255
White lime .....	30	1285
White shale .....	5	1290
White lime .....	265	1555
Brown sand .....	35	1590
Blue sand .....	27	1617
Blue shale .....	188	1805

DEVONIAN SYSTEM.

Brown shale	} (Devonian)	120	1925
White shale		15	1940
Brown shale		5	1945

SILURIAN SYSTEM.

White shale .....	60	2005
Red shale.....	5	2010
White shale .....	35	2045
Red shale .....	15	2060
White shale .....	5	2065
White lime .....	70	2135

ORDOVICIAN SYSTEM.

Shale .....	70	2205
White lime .....	25	2230

LOG No. 716.

WATER CO. WELL.  
Williamsburg.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift .....	28	28
Gravel .....	3	31
Slate .....	14	45
Sand—oil at 47 .....	24	69
Slate .....	11	80
Sand—oil at 87 .....	10	90
Slate .....	30	120
Sand .....	8	128
(All in Pottsville).		

LOG No. 717.

PERKINS WELL.  
Williamsburg.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	20	20
Black sand .....	10	30
Blue slate .....	60	90
Sand—oil at 100 .....	10	100
Slate .....	50	150
White sand .....	28	178
Coal .....	2	180
White sand .....	60	240
Slate .....	5	245
Whit sand—oil at 360.....	120	365
Slate .....	5	370
Coal .....	5	375
(All in Pottsville).		

LOG No. 718.

NELSON WELL No. 2.  
Williamsburg.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift .....	28	28
Slate .....	102	130
Sand .....	35	160
Slate .....	10	175
White sand .....	75	250
Slate .....	5	255
White sand .....	115	370
Coal .....	5	375
Slate .....	5	380
White sand .....	90	470
Slate .....	5	475
White sand .....	98	573
Slate .....	7	580
White sand—oil at 645 .....	68	648
Coal .....	2	650
Slate and shells .....	115	765
Slate .....	1	766
White sand—oil show at 770 and 805, salt water at 838 .....	74	840
Sand .....	8	848
Slate .....	23	871
(All in Pottsville).		

LOG No. 719.

## ELECTRIC LIGHT PLANT WELL.

Williamsburg.

(Partial record).

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
White sand—oil at 385.....	50	425
Slate .....	5	430
White sand .....	100	530
Slate .....	5	535
White sand .....	35	570
Slate .....	5	575
White sand—oil and gas at 605.....	85	660
Slate and shells .....	75	735
White sand—oil and gas at 745.....	20	755
Brown shale .....	11	766
White sand (base of Pottsville) .....	45	811
MISSISSIPPIAN SYSTEM.		
Blue slate .....	10	821
Pink slate—Mauch Chunk .....	5	826

LOG No. 720.

## SUTTON FARM.

1 mile S. W. of Williamsburg.

Strata	Thickness	Depth
Soil .....	5	5
Sand and slate .....	140	145
Shale and shells .....	110	255
Black slate .....	147	402
Sand .....	185	587
Slate .....	15	602
Sand .....	15	617
Slate .....	80	697
White sand—gas at 784.....	87	784
Black shale and slate .....	19	803
Sand—oil at 957 .....	172	975

(All in Pottsville).

LOG No. 721.

## G. W. RAINS No. 2.

Near Williamsburg.

(Partial record).

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
		753
Sand—oil at 770, 790 and 811.....	82	835
Shale (with coal) .....	45	880

MISSISSIPPIAN SYSTEM.

Sand .....	23	903
Light shale .....	15	918
Lime .....	17	935
Dark shale .....	10	945
Lime .....	10	955
Pink slate—Mauch Chunk .....	45	1000
Lime .....	20	1020
Pink slate—Mauch Chunk .....	10	1030
Lime .....	15	1045
Light shale .....	5	1050
Lime .....	25	1075
Shale and lime .....	95	1170
Lime—gas at 1369.....	211	1381

LOG No. 722.

STEELY FARM No. 2.  
1 mile N. of Williamsburg.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Sand .....	20	30
Slate .....	105	135
Sand .....	150	285
Lime .....	20	305
Sand .....	75	380
Lime .....	5	385
Coal .....	5	390
White sand .....	202	592
Shale .....	2	594
Black shale .....	30	624
Coal .....	2	626
Sand—salt water at 628 .....	24	650
Slate and shells .....	100	750
Sand .....	24	774
Black slate (base of Pottsville) .....	6	780
MISSISSIPPIAN SYSTEM.		
Pink rock—Mauch Chunk .....	20	800
Blue slate .....	35	835
Red rock .....	10	845
Lime .....	10	855
Blue slate .....	7	862

## LOG No. 723.

**STEELY FARM No. 4.**  
1 mile N. of Williamsburg.

Strata	Thickness	Depth
Drift	30	30
Black slate .....	19	49
Sand	4	53
Black slate	82	135
White sand	170	305
Lime	5	310
White sand	28	338
Slate	2	340
Sand	40	380
Lime (?)	5	385
Coal	5	390
White sand	200	590
Slate .....	5	595
Black shale	20	615
Coal	2	617
White sand	33	650
Black shale	5	655
Sand .....	15	670
Slate	5	675
Sand	15	690
Slate	10	700
Brown shale	44	744
Sand—oil	46	790
Slate (base of Pottsville) .....	5	795
<b>MISSISSIPPIAN SYSTEM.</b>		
Pink rock—Mauch Chunk .....	5	800

## LOG No. 724.

**STEELY FARM No. 5.**  
1 mile N. of Williamsburg.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Drift ....	25	25
Sand	5	30
Slate .....	15	45
Sand ....	10	55
Slate .....	25	80
Black slate	55	135
White sand .....	200	335
Slate	5	340
White sand	40	380
Lime	5	385
Coal .....	5	390

DRILLED WELLS—WHITLEY COUNTY

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White sand .....	202	592
Slate .....	3	595
Sand .....	55	650
Coal .....	2	652
Sand—gas at 660.....	8	660
Lime .....	10	670
Slate .....	15	685
Shale .....	59	744
White sand—oil at 750, 770 and 790.....	54	798
Slate .....	6	804
(All in Pottsville).		

LOG No. 725.                      STEELY FARM No. 8.  
1 mile N. of Williamsburg.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Drift and clay .....	20	20
Slate .....	10	30
Blue shale .....	20	50
Coal .....	2	52
Slate .....	93	145
Gray sand .....	25	170
White sand .....	170	340
Slate .....	10	350
White sand .....	55	405
Coal .....	5	410
White sand—oil at 550.....	140	550
Sandstone .....	5	555
Slate .....	5	560
White sand .....	43	603
Shale .....	2	605
Slate .....	5	610
Sand .....	50	660
Coal .....	2	662
Sand .....	3	665
Lime .....	10	675
Slate .....	15	690
Sand .....	15	705
Slate and shells .....	20	725
Shale (base of Pottsville ).....	41	766
MISSISSIPPIAN SYSTEM.		
Sand and pink rock—Mauch Chunk.....	29	795
Red rock—Mauch Chunk .....	30	825
Black sand and slate .....	21	846
Red rock—Mauch Chunk .....	10	850
Black slate .....	4	860
Lime .....	10	870

Slate and shells .....	30	900
Slate	10	910
Red rock	10	920
Lime	5	925
Slate and shells	60	985
Slate .....	15	1000
Lime	35	1035
Slate	5	1040
Lime	285	1325
Granite (?)	25	1350
Lime	20	1370
Lime and flint .....	5	1375
Flint	15	1390
Lime and flint	30	1420
Lime	35	1455
Slate	10	1465
Black shale	25	1490
Shale	20	1510
Lime	20	1530
Slate	40	1570
Lime	10	1580
<b>DEVONIAN SYSTEM.</b>		
Brown shale (Devonian) .....	120	1700
White slate .....	20	1720
<b>SILURIAN SYSTEM.</b>		
Gray sand .....	5	1725
White slate .....	15	1740
Blue slate .....	30	1770
Slate and shells .....	50	1820
Slate .....	10	1830
Sand .....	20	1850
Slate .....	10	1860
Sand .....	10	1870
<b>ORDOVICIAN SYSTEM.</b>		
Sand and lime .....	20	1890
Lime .....	30	1920
Lime and red rock .....	15	1935
Lime .....	235	2170

## LOG No. 726.

WELL AT MOUTH OF CLEAR FORK.  
(Partial record).

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Shale .....	57	825
Sand (base of Pottsville) .....	75	885
		960

MISSISSIPPIAN SYSTEM.

Lime .....	10	970
Pink rock—Mauch Chunk .....	35	1005
Lime .....	20	1025
Shale .....	5	1030
Lime .....	30	1060
Shale .....	30	1090
Lime .....	15	1105
Shale .....	55	1160
Lime .....	370	1530
Gas well.		

WOLFE COUNTY.

LOG No. 727.

BREWER FARM—No. 1.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	8	8
Shale .....	47	55
Sand .....	145	200
Blue shale .....	6	206
Sand .....	44	250
Blue shale .....	15	265
White sand—oil show .....	18	283
MISSISSIPPIAN SYSTEM.		
Blue shale—Mauch Chunk .....	117	400
Lime—"Big lime" .....	90	490
Blue shale .....	500	990
DEVONIAN SYSTEM.		
Brown shale .....	176	1166
Yellow shale .....	18	1184
"Cap rock" .....	3	1187
Sandy lime—oil show .....	3	1190
Lime .....	18	1208
SILURIAN SYSTEM.		
Sandy lime .....	37	1245
Brown sand (?) .....	2	1247
"Oil sand" .....	19	1266
Lime and sand .....	9	1275
Black sandy lime .....	12	1287
Light sandy lime .....	5	1292

LOG No. 728.

BREWER FARM—No. 2.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Clay .....	4	4
Sand .....	40	44
Shale .....	106	150
Sand .....	140	290
MISSISSIPPIAN SYSTEM.		
Blue shale .....	15	305
White sand .....	115	445
Lime—"Big lime" .....	85	530
White slate .....	500	1030
DEVONIAN SYSTEM.		
Brown shale .....	185	1215
White slate .....	8	1223
Brown shale .....	5	1228
"Cap rock" .....	7	1235
Sand (?)—oil show .....	6	1241
Slate .....	1	1242
Black lime .....	31	1273
SILURIAN SYSTEM.		
Sand (?)—oil at 1273.....	5	1278

LOG No. 729.

ISAAC HOLLON FARM.

Holly Creek.

(Partial record).

PENNSYLVANIAN SYSTEM.		
Strata	Feet	Feet
MISSISSIPPIAN SYSTEM.		
Bottom of "Big lime" .....	at	840
Green shale .....	840	850
Slate.		
Red rock.		
Brown slate .....	1145	1150
"Oil sand" .....	1178	1188
Brown slate .....	1190	1360
DEVONIAN SYSTEM.		
Black slate .....	1360	1400
Blue slate .....	1400	1415
Mixed slate .....	1420	1435
Cap rock .....		1450
Oil sand .....	1450	1471
White sand .....	1471	1475

LOG No. 730.

DAVE WELLS FARM—STILLWATER DISTRICT.

4 miles S. E. of Campton.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	3	3
Gray sand (water at 55 ft.).....	147	150
Coal .....	5	155
Gray sand .....	290	445
Black shale .....	15	460
Gray sand .....	5	465
White sand .....	25	490
<b>MISSISSIPPIAN SYSTEM.</b>		
Little lime .....	20	510
Blue shale .....	16	526
Big lime .....	110	636
Green shale .....	20	656
Broken lime and shale (blue) .....	64	720
Blue shale .....	440	1160
<b>DEVONIAN SYSTEM.</b>		
Black shale .....	192	1352
Fire clay .....	20	1372
Brown shale .....	12	1384
Limestone (oil and gas) .....	20	1414
Brown lime .....	20	1434
Gray lime .....		1454

LOG No. 731.

OLD WELL AT CAMPTON.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Partly unrecorded.		
White sands and slates .....	420	420
St. Louis L. S. ....	110	530
Blue and white shales .....	498	1028
<b>DEVONIAN SYSTEM.</b>		
Devonian black shales .....	191	1219
Blue shale .....	31	1250
Oil sand .....	16	1266

(No mention is made of the Berea Grit, although it must have been passed through).

LOG No. 732. J. M. TERRELL WELL—No. 1.  
Just north of Mary on Upper Devil Creek. Ohio Oil Company, opera-  
tor. Drilled 1917. Elevation 900 ft.  
(Partial record.)

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	9	9
Sand .....	31	40
Slate .....	6	46
Coal .....	2	48
Sand .....	66	114
Coal .....	6	120
Break .....	8	128
Slate .....	43	171
Sand .....	71	242
Coal .....	9	251
Slate .....	12	263
Sand .....	28	291
Sandstone .....	10	301
Settling sand .....	30	331
MISSISSIPPIAN SYSTEM.		
Little lime .....	20	351
Slate .....	14	365
Big lime .....	144	509
Waverly and black shale unrecorded.		
To top of 1st sand.....		1251
To bottom .....		1268
Oil scum .....	1253	to 1254
Some oil .....	1254	to 1268
Total depth .....		1328
Bottom white lime 504		
Top of black shale 1045		

Authorities, George Center to Big Lime; contractor at well  
to bottom.  
Also given by the Ohio Oil Co.

LOG No. 733. J. M. TAULBEE—No. 1.  
At Mary, Upper Devil Creek.  
Devils Creek Oil Co., Judge Center, Contractors. Elevation 875.  
Strata Drilled April 12, 1918.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Soil .....	10	10
Slate .....	13	23
Sand .....	172	195
Slate .....	85	280
Sand .....	82	362
Break .....	12	374
Slate .....	31	405

MISSISSIPPIAN SYSTEM.

Lime .....	20	425
Slate .....	10	435
Big lime .....	110	545
Waverly shale .....	550	1095

DEVONIAN SYSTEM.

Black shale .....	180	1275
White clay .....	25	1300
"Sand" .....	34	1334

10-12 bbl. well; ruined by over shooting.

LOG No. 734.

I. S. MILLER—No. 1.

Drilled 1917 by Ohio Oil Co. Elevation 1000 ft.  
(Partial record.)

Strata	Thickness	Depth
Top of 1st sand .....		1282
Bottom .....		1285
Gas show .....	1282 to	1285
Total depth .....		1308

Given by Ohio Oil Co., from its files September 4, 1918.

LOG No. 735.

T. C. HOLLON—No. 1.

Devils Creek Oil & Gas Company, Operators. Elevation 775. Lantry  
Fike Construction Company, drillers.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Surface .....	12	12
Sand .....	147	159
Blue shale .....	30	189
Sand .....	175	364
Shale .....	17	381

MISSISSIPPIAN SYSTEM.

Little lime .....	18	399
Shale .....	13	412
St. Louis lime .....	118	530
Blue shale .....	530	1060

DEVONIAN SYSTEM.

Brown shale .....	210	1270
White shale .....	18	1288
Black shale .....	15	1303
Top of sand .....		1303

## LOG No. 736. WELL AT CANNELTON, INDIANA.

Opposite Hawesville, Hancock County, Ky.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Sand .....	47	47
Shale .....	110	157
White sand (base of Pottsville) .....	63	220
<b>MISSISSIPPIAN SYSTEM.</b>		
Shale .....	9	229
Lime .....	41	270
Shale .....	5	275
Hard white lime .....	55	330
Shale .....	16	346
Lime .....	6	352
White sand .....	5	357
Shale .....	3	360
Sand .....	13	373
Shale .....	23	396
Dark lime .....	10	406
Gray shale .....	30	436
White lime .....	9	445
Gray shale .....	15	460
White sand—sa't water at 480.....	51	511
Shale .....	7	518
White lime—salt water at 733.....	218	736
Lime—salt water at 774.....	204	940
Dark sandy shale .....	87	1027
Dark brown lime .....	81	1108
Lime .....	672	1780
<b>DEVONIAN SYSTEM.</b>		
"Utica" shale* (probably Devonian).....	120	1900
"Trenton"* .....	633	2533

\*Driller's distinctions.

## LOG No. 737.

## WELL AT TELL CITY, INDIANA.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	25	25
Gray shale .....	15	40
Gray sand .....	40	80
Dark sand (base of Pottsville).....	80	160
<b>MISSISSIPPIAN SYSTEM.</b>		
Gray and white lime (top of Chester).....	30	190
Dark gray shale .....	30	220
"No sample" .....	10	230
Yellowish brown lime .....	5	235
Grayish-green shale .....	45	280

# DRILLED WELLS—WOLFE COUNTY

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Gray lime .....	71	351
Gray sand .....	6	357
Gray lime and dark gray shale .....	43	400
Gray sand .....	15	415
Gray, red and brown shales .....	116	531
Gray lime .....	33	564
Dark gray shale .....	36	600
Gray sand .....	20	620
Lime and black shale .....	3	623
Gray lime .....	17	640
Reddish-brown shale .....	13	653
Gray sand .....	27	680
Reddish-brown shale .....	5	685
Gray sand (Cypress?) .....	62	747
"No sample" .....	10	757
Gray lime .....	168	925
Light lime .....	245	1170

LOG No. 738.

## WELL AT CINCINNATI. (Partial record).

Strata	Feet
ORDOVICIAN SYSTEM.	
Dark gray crystalline limestone.....	at 280
Gray and white sand (?) .....	at 290
Crystalline limestone and dark shale.....	at 305
Gray calcareous shales at 334, 344, 385, 450, 505, 575, 610 and 640	
Soft white limestone .....	at 675
White calcareous shale .....	at 775
Fine-grained white sandy limestone (Calclferous)....	815 to 1330

LOG No. 739.

## WELL AT PORTSMOUTH. OHIO. (E. O. Orton).

Strata	Thickness	Depth
MISSISSIPPIAN SYSTEM.		
Waverly .....	120	120
Berea (Sunbury) shale .....	30	150
Berea grit .....	50	200
Bedford shale .....	50	250
DEVONIAN SYSTEM.		
Devonian shales .....	560	810
SILURIAN SYSTEM.		
Helderburg, Niagaran and Clinton lime- stones .....	675	1485
ORDOVICIAN SYSTEM.		
Medina .....	50	1535
Hudson .....	465	2000

## LOG No. 740.

WELL AT IRONTON, OHIO.  
(E. O. Orton).

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Coal measures .....	282	282
Conglomerate and Logan group .....	300	582
Blue shale .....	30	612
Sandstone .....	30	642
Cuyahoga shales .....	348	990
Berea (Sunbury) shale .....	20	1010
Berea grit .....	47	1057
Bedford shale and sand .....	90	1147
<b>DEVONIAN SYSTEM.</b>		
Devonian shales .....	680	1827
Corniferous and upper Silurian lime- stones .....	584	2411
Upper Silurian and Hudson shale and limestone .....	1031	3442
(Top of Mississippian, Silurian and Ordovician indefinite.)		

## LOG No. 741.

HUTCHISON WELL.  
3 miles S. of Kenova, W. Va.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil and quicksand .....	33	33
White slate .....	17	50
Sand .....	27	77
White slate .....	22	99
Coal .....	2	101
White slate .....	40	141
Sand .....	40	181
Black slate .....	10	191
Sand .....	117	308
Black slate .....	12	320
Sand .....	20	340
Black slate .....	51	391
Coal .....	2	393
Black slate .....	15	408
Lime shell .....	10	418
White slate .....	25	443
Sand .....	10	453
White slate .....	33	486
Sand .....	8	494
White slate .....	28	522
Sand .....	12	534

# **DRILLED WELLS—WOLFE COUNTY**

541

Black slate .....	20	554
Sand .....	15	569
Black slate .....	48	617
Sand .....	12	629
Coal .....	2	631
Lime shells .....	15	646
Black slate .....	28	674
Sand .....	45	719
Slate and shells .....	24	743
Salt sand—salt water .....	77	820
Coal .....	4	824
Salt sand—base of Pottsville .....	18	842
<b>MISSISSIPPIAN SYSTEM.</b>		
Red rock—Mauch Chunk .....	4	846
Lime shells .....	10	856
Sand and lime shells .....	96	952
Green slate .....	6	958
Sand .....	20	978
Lime shells .....	3	981
Sand .....	25	1006
Lime .....	32	1038
Lime and sand—Big Lime .....	125	1163
Black slate .....	10	1173
Sand .....	74	1247
Black slate .....	60	1307
Sand .....	30	1337
Black slate .....	255	1592
Black shale (Sunbury?).....	25	1617
Berea grit (?) .....	60	1677
Blue slate .....	300	1977
Black sand .....	15	1992
<b>DEVONIAN SYSTEM.</b>		
Black slate .....	192	2184
Blue slate .....	8	2192
Black sand .....	15	2207
Black slate .....	52	2259
Blue slate .....	5	2264

LOG No. 742.

Report of Diamond Drill Prospecting Work Done for Rogers Bros. Coal  
Co., by Sullivan Machinery Co., Chicago, Illinois.  
Near Williamson, W. Va.

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Gravel and boulder	10	10
Gravel sand boulders	29	19
Broken ledge	30	1
Sandstone	70	40

Broken sandstone	100	30
Sandstone	148	48
Shale	177-6	29-6
Coal	178	-6
Shale	182	4
Sandstone	280	98
Shale	293	13
Sand shale	298	5
Shale	302	4
Coal	302-4	-4
Sandstone	367	64-8
Shale	371-6	4-6
Coal	372-2	-8
Sandstone	377	13-10
Shale	396-4	10-4
Coal	396-10	-6
Shale	405	8-2
Sand shale	423	18
Sandstone	425	2
Sand shale	454	29
Sandstone	464	10
Conglomerate ss.	474	10
Sandstone	480	6
Sand shale	492	12
Sandstone	571	79
Hard sandstone	592	21
Sandstone	601	9
Shale	602	1
Hard sandstone	622	20
Sandstone	651	29
Hard sandstone	661	10
Conglomerate ss.	677	16
Hard sandstone	705	28
Conglomerate ss.	716	11
Sandy shale	723	7
Shale	759	36
Sand shale	765	6
Sandstone	768	3
Shale	769-3	1-3
Coal	769-11	-8
Shale	774	4-1
Sand shale	778	4
Shale	779	1
Hard sandstone	840	61
Conglomerate ss.	918	78

Good flow of gas struck at 918.

LOG No. 743

WELL AT CENTRAL CITY, W. VA.  
(I. C. White).

Strata	Thickness	Depth
<b>PENNSYLVANIAN SYSTEM.</b>		
Soil .....	26	26
Shale, sand and lime .....	94	120
Lime .....	7	127
Slate and fire clay .....	98	225
Sand .....	25	250
Slate .....	50	300
Sand—gas .....	30	330
Black slate .....	10	340
Gray sand .....	60	400
Black slate .....	10	410
Gray sand .....	85	495
White and blue slate .....	25	520
Sand and lime .....	20	540
Slate .....	20	560
Black slate .....	175	735
Gray sand .....	25	760
Black slate .....	105	865
Sand—gas and salt water .....	30	895
Black sand .....	10	905
Black slate (base of Pottsville) .....	30	935
<b>MISSISSIPPIAN SYSTEM.</b>		
Lime .....	5	940
Black slate .....	30	970
"Big lime" .....	150	1120
Slate .....	28	1148
"Big Injun" sand—salt water.....	177	1325
Black shale and slate .....	370	1695
Lime and hard sand .....	10	1705
Brown slate (Sunbury) .....	25	1730
"Berea" sand—oil and gas .....	25	1755
Black slate .....	10	1765
Hard gray sand .....	5	1770
Lime .....	5	1775
Gray sand .....	10	1785
Lime .....	3	1788
Black sand .....	2	1790
Bastard lime .....	4	1794
Black shale .....	20	1814
Fine black sand .....	97	1911
<b>DEVONIAN SYSTEM.</b>		
Black, blue and white shales.....	574	2485
Bastard lime—stray gas sand .....	15	2500

## SILURIAN SYSTEM.

Shale .....	250	2750
Gray sand .....	10	2760
Limestone .....	10	2770

## LOG No. 744.

## TOOMEY No. 1.

Oneida, Scott County, Tenn.

Strata	Thickness	Depth
PENNSYLVANIAN SYSTEM.		
Dark sand .....	20	20
White sand .....	180	200
Slate and thin coal .....	30	230
White sand .....	80	310
Slate .....	40	350
White sand .....	70	420
Slate .....	130	550
White sand .....	60	610
MISSISSIPPIAN SYSTEM.		
Red slate (Pennington) .....	140	750
Gray lime .....	195	945
Sandy lime—oil .....	20	965
Gray and brown limes—oil at 970 .....	331	1296
Blue shale .....	10	1306
Gray sandy lime .....	71	1377
Pinkish crystalline lime .....	19	1396
Gray lime with dark oil bearing specks....	2	1398
Hard lime .....	20	1418
White lime .....	12	1430
Brown lime .....	45	1475
DEVONIAN SYSTEM.		
Black shale (Chattanooga) .....	65	1540
Blue slate .....	15	1555
Blue lime with layers of slate.....	45	1600
Blue lime .....	100	1700

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Logs 745-749, inclusive, appear on pages 428-431.

Logs 750-752 inclusive, appear on pages 331-335.

Total number of logs in this volume is 752.

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# CHAPTER IX.

## PRECISE LEVEL NET ADJUSTMENT AND STANDARD ELEVATIONS IN KENTUCKY.\*

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Louisville, Ky. . . . .	U. S. E. B. M. No. 10(=602B)	127.146	417.145
Louisville, Ky. . . . .	U. S. E. B. M. 603 . . . . .	126.777	415.935
Louisville, Ky. . . . .	U. S. E. B. M. 604M . . . . .	131.175	430.363
Louisville, Ky. . . . .	P. B. M. 604....	130.941	429.595
Louisville, Ky. . . . .	Guard Pier . . . . .	135.464	444.435
Louisville, Ky. . . . .	P. B. M. 604A..	121.469	398.520
Louisville, Ky. . . . .	P. B. M. 605 . . . . .	122.781	402.824
Louisville, Ky. . . . .	P. M. B. 606 . . . . .	124.211	407.514
Louisville, Ky. . . . .	P. B. M. 607 . . . . .	124.320	407.872
Louisville, Ky. . . . .	P. B. M. 607A	122.748	402.716
Louisville, Ky. . . . .	P. B. M. 608 . . . . .	126.778	415.938
Louisville, Ky. . . . .	P. B. M. 609 . . . . .	123.388	404.814
Near Louisville, Ky. . . . .	P. B. M. 610 . . . . .	122.379	401.504
Near Louisville, Ky. . . . .	P. B. M. 611 . . . . .	126.377	414.622
Near Louisville, Ky. . . . .	P. B. M. 612 . . . . .	123.574	405.425
Near Louisville, Ky. . . . .	P. B. M. 613 . . . . .	124.723	409.195
In Kentucky, near Bridgeport, Ind.....	P. B. M. 614 . . . . .	124.929	409.872
In Kentucky, near Bridgeport, Ind.....	P. B. M. 614A	129.971	426.412
Near Greenwood Landing, Ky. . . . .	P. B. M. 615 . . . . .	123.451	405.022
Greenwood Landing, Ky. . . . .	P. B. M. 616 . . . . .	126.361	414.569
In Kentucky, near Stewarts Landing, Ind.	P. B. M. 617 . . . . .	126.839	416.138
Near Valley Station, Ky. . . . .	P. B. M. 618 . . . . .	126.720	415.748
Near Johnstontown, Ky.....	P. B. M. 619 . . . . .	125.736	412.518
Near Bethany, Ky. . . . .	P. B. M. 620 . . . . .	120.728	396.087
Near Kosmosdale, Ky. . . . .	P. B. M. 621 . . . . .	126.641	415.489
Near Kosmosdale, Ky. . . . .	P. B. M. 622 . . . . .	123.246	404.348
Near Kosmosdale, Ky. . . . .	P. B. M. 623 . . . . .	123.990	406.791
Kosmosdale, Ky. . . . .	P. B. M. 623A	130.269	427.390
Kosmosdale, Ky. . . . .	P. B. M. 624 . . . . .	126.189	414.004
Near Kosmosdale, Ky. . . . .	P. B. M. 625 . . . . .	125.582	412.014
Near West Point, Ky. . . . .	P. B. M. 626 . . . . .	121.060	397.178
West Point, Ky. . . . .	U. S. G. S. 441	134.342	440.753

\* U. S. Coast and Geodetic Survey, Special Publication No. 18, By Bowle and Avers, 1914.

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
West Point, Ky. ....	P. B. M. 627 ....	130.283	427.436
Near West Point, Ky. ....	P. B. M. 628 ....	125.020	410.171
Wabash Island, Ky.....	P. B. M 53, bolt	105.092	344.789
	Cap .....	106.322	348.825
In Kentucky, near mouth of Wabash.....	P. B. M. 54, bolt	113.299	371.715
	Cap .....	114.517	375.711
Blackburn, Ky., opp. Shawneetown, Ill.....	P. B. M. Ken- tucky .....	105.925	347.522
In Kentucky, opposite Dear Creek, Ind...	P. B. M. 715 ....	120.039	393.829
In Kentucky, opposite Dear Creek, Ind...	P. B. M. 715A	120.208	394.381
Near Landis Landing, Ky.....	P. B. M. 716 ....	119.380	391.665
Near Hawesville, Ky. ....	P. B. M. 717 ....	118.391	388.421
Near Hawesville, Ky. ....	P. B. M. 717A	119.004	390.432
Near Hawesville, Ky. ....	P. B. M. 718 ....	117.553	385.671
Near Hawesville, Ky. ....	P. B. M. 719....	114.712	376.350
Hawesville, Ky. ....	P. B. M. 720 ....	114.642	376.122
Hawesville, Ky. ....	P. B. M. 720A	119.037	390.539
Hawesville, Ky. ....	U. S. G. S. 422	127.973	419.857
Near Hawesville, Ky. ....	P. B. M. 721 ....	115.308	378.307
Near Hawesville, Ky. ....	P. B. M. 722 ....	115.957	380.437
Near Hawesville, Ky. ....	P. B. M. 723 ....	115.945	380.397
Deachams Landing, Ky. ....	P. B. M. 724 ....	113.934	373.799
In Hancock County, Ky., above Troy, Ind.	P. B. M. 725 ....	115.609	379.295
In Hancock County, Ky., above Troy, Ind.	P. B. M. 726 ....	121.209	397.667
In Hancock County, Ky., below Troy, Ind.	P. B. M. 727 ....	119.140	390.878
In Hancock County, Ky., below Troy, Ind.	P. B. M. 728 ....	115.602	379.271
In Hancock County, Ky., below Troy, Ind.	P. B. M. 728A	116.979	383.788
Near Lewisport, Ky. ....	P. B. M. 729 ....	115.718	379.651
Near Lewisport, Ky. ....	P. B. M. 730 ....	114.333	375.108
Near Lewisport, Ky. ....	P. B. M. 731 ....	113.833	373.468
Near Lewisport, Ky. ....	P. B. M. 732 ....	116.375	381.807
Near Lewisport, Ky. ....	P. B. M. 733 ....	114.650	376.148
Lewisport, Ky. ....	P. B. M. 733A	121.504	398.634
Lewisport, Ky. ....	P. B. M. 734 ....	113.241	371.525
Near Lewisport, Ky. ....	P. B. M. 735 ....	118.823	389.838
Near Lewisport, Ky. ....	P. B. M. 736 ....	120.972	396.889
Near Lewisport, Ky. ....	P. B. M. 737 ....	117.805	386.500
In Kentucky, opposite Grand View, Ind...	P. B. M. 738 ....	112.479	369.024
In Kentucky, opposite Grand View, Ind...	P. B. M. 739 ....	112.103	367.791
In Kentucky, near Rockport, Ind.....	P. B. M. 740....	112.764	369.960

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
In Kentucky, near Rockport, Ind.....	P. B. M. 741 ....	117.190	384.480
In Kentucky, near Rockport, Ind.....	P. B. M. 742 ....	117.114	384.233
In Kentucky, near Rockport, Ind.....	P. B. M. 743 ....	114.389	375.291
Iceland Landing, Ky. ....	P. B. M. 744 ....	113.298	371.713
Near Mouth of Puppy Creek, Ky.....	P. B. M. 745 ....	115.804	379.933
Puppy Creek, Ky. ....	P. B. M. 746 ....	113.330	371.818
Near Owensboro, Ky. ....	P. B. M. 747 ....	112.574	369.336
Near Owensboro, Ky. ....	P. B. M. 749 ....	113.079	370.994
Near Owensboro, Ky. ....	P. B. M. 750 ....	107.957	354.190
Near Owensboro, Ky. ....	P. B. M. 751 ....	120.582	395.609
Owensboro, Ky. ....	P. B. M. 752 ....	109.424	359.003
Owensboro, Ky. ....	U. S. G. S. 396	120.287	394.642
Owensboro, Ky. ....	High Water		
	1884 ..	118.234	387.906
Owensboro, Ky. ....	Water gauge....	103.384	339.187
Near Owensboro, Ky. ....	P. B. M. 753 ....	108.202	354.992
Near Owensboro, Ky. ....	P. B. M. 754 ....	108.923	357.357
Near Owensboro, Ky. ....	P. B. M. 755 ....	115.570	379.165
Near Little Hurricane Island, Ky.....	P. B. M. 756 ....	112.719	369.813
Near Little Hurricane Island, Ky.....	P. B. M. 757 ....	113.915	373.736
Near Little Hurricane Island, Ky.....	P. B. M. 758 ....	114.573	375.896
Near Little Hurricane Island, Ky.....	P. B. M. 759 ....	110.678	363.117
Near French Island, Ky.....	P. B. M. 760 ....	109.144	358.083
Near French Island, Ky.....	P. B. M. 761 ....	113.657	372.889
Near French Island, Ky.....	P. B. M. 762 ..	113.431	372.148
Near French Island, Ky.....	P. B. M. 763 ....	113.811	373.394
Near French Island, Ky.....	P. B. M. 764 ....	113.392	372.019
Near French Island, Ky. ....	P. B. M. 765 ....	112.039	367.581
Near French Island, Ky.....	P. B. M. 766 ..	108.314	356.361
Near Carlinburg, Ky. ....	P. B. M. 767 ..	108.624	356.377
Near Scuffletown, Ky. ....	P. B. M. 768 ....	107.373	352.274
Near Scuffletown, Ky. ....	P. B. M. 769 ....	108.010	354.364
Near Scuffletown, Ky. ....	P. B. M. 771 ....	113.292	371.692
Near Scuffletown, Ky. ....	P. B. M. 773 ....	109.386	358.878
Near Mouth of Green River, Ky. ....	P. B. M. 777 ....	109.802	360.241
Near Mouth of Green River, Ky. ....	P. B. M. 778 ....	109.161	358.138
Near Mouth of Green River, Ky. ....	P. B. M. 779 ....	108.000	354.331
In Kentucky, near Evansville, Ind....	P. B. M. 780 ..	109.432	359.028
In Kentucky, near Evansville, Ind....	P. B. M. 781 ....	111.968	367.349
In Kentucky, near Evansville, Ind.....	P. B. M. 782 ....	107.319	352.095

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
In Kentucky, near Evansville, Ind.....	P. B. M. 783 ...	111.573	366.053
In Kentucky, near Evansville, Ind.....	P. B. M. 784 ...	112.048	367.611
In Kentucky, near Evansville, Ind.....	P. B. M. 785 ...	112.502	369.101
In Kentucky, near Evansville, Ind.....	P. B. M. 786 ...	111.739	366.596
In Kentucky, near Evansville, Ind.....	P. B. M. 787 ...	109.326	358.681
In Kentucky, near Evansville, Ind.....	P. B. M. 788 ...	110.237	361.670
In Kentucky, near Evansville, Ind.....	P. B. M. 789 ...	111.714	366.515
In Kentucky, near Evansville, Ind.....	P. B. M. 790 ...	107.434	352.474
Evansville, Ind. ....	High water ...	114.834	376.751
	marks	114.905	376.983
Evansville, Ind. ....	U. S. G. S. 394	120.154	394.206
Dutch Bend, Ky. ....	P. B. M. 791	110.698	363.181
Dutch Bend, Ky. ....	P. B. M. 792 ...	108.842	357.092
Near Henderson, Ky. ....	P. B. M. 793 ...	107.048	351.206
Near Henderson, Ky. ....	P. B. M. 794 ...	106.888	350.683
Near Berry Ferry, Ky. ....	P. B. M. 888 ...	98.220	322.243
Near Berry Ferry, Ky. ....	P. B. M. 889 ...	97.524	319.959
Near Berry Ferry, Ky. ....	P. B. M. 890 ...	98.497	323.153
Near Berry Ferry, Ky. ....	P. B. M. 891 ...	101.779	333.920
Near Berry Ferry, Ky. ....	P. B. M. 892 ...	96.240	315.747
Golconda, Ill. ....	High Water ...		
	1883	106.451	349.249
Golconda, Ill. ....	High Water ...		
	1884	106.899	350.719
Near Berry Ferry, Ky. ....	P. B. M. 893 ...	97.695	320.522
Near Berry Ferry, Ky. ....	P. B. M. 894 ...	101.262	332.225
Near Pryors Island, Ky. ....	P. B. M. 895 ...	97.821	320.934
Near Bayou, Ky. ....	P. B. M. 896 ...	100.887	330.993
Near Bayou, Ky. ....	P. B. M. 897 ...	99.678	327.027
Near Bayou, Ky. ....	P. B. M. 898 ...	96.865	317.799
Near Bayou, Ky. ....	P. B. M. 899 ...	102.065	334.857
Near Bayou, Ky. ....	P. B. M. 900 ...	97.109	318.597
Bayou, Ky. ....	P. B. M. 901 ...	99.459	326.308
Near Birdsville, Ky. ....	P. B. M. 902 ...	104.650	343.339
Birdsville, Ky. ....	P. B. M. 903 ...	101.234	332.133
Birdsville, Ky. ....	P. B. M. 903A	102.335	335.743
Near Birdsville, Ky. ....	P. B. M. 904 ...	96.587	316.886
Near Birdsville, Ky. ....	P. B. M. 905 ...	95.327	312.753
Near Smithland, Ky. ....	P. B. M. 906 ...	98.835	324.261
Near Smithland, Ky. ....	P. B. M. 907 ...	99.494	327.047

## ADJUSTMENT AND ELEVATIONS

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Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Near Smithland, Ky. ....	P. B. M. 908 ...	97.761	320.736
Smithland, Ky. ....	P. B. M. 909 ...	98.965	324.689
Smithland, Ky. ....	P. B. M. 909A ...	103.299	338.678
Near Smithland, Ky. ....	P. B. M. 910 ...	97.159	318.763
Near Smithland, Ky. ....	P. B. M. 911 ...	99.514	326.488
Near Smithland, Ky. ....	P. B. M. 913 ...	95.992	314.934
Near Ledbetter, Ky. ....	P. B. M. 914 ...	95.990	314.928
Near Ledbetter, Ky. ....	P. B. M. 915 ...	98.544	323.307
Near Ledbetter, Ky. ....	P. B. M. 916 ...	100.144	328.555
Near Ledbetter, Ky. ....	P. B. M. 917 ...	94.793	311.001
Near Paducah, Ky. ....	P. B. M. 918 ...	93.934	308.181
Near Paducah, Ky. ....	P. B. M. 919 ...	99.352	325.957
Near Paducah, Ky. ....	P. B. M. 920 ...	98.819	324.208
Near Paducah, Ky. ....	P. B. M. 921 ...	93.433	306.538
Near Paducah, Ky. ....	P. B. M. 922 ...	98.750	323.982
Paducah, Ky. ....	P. B. M. 923 ...	99.530	326.542
Paducah, Ky. ....	P. B. M. 923A ...	91.533	300.303
Paducah, Ky. ....	P. B. M. 924 ...	93.523	306.834
Near Paducah, Ky. ....	P. B. M. 925 ...	95.029	311.774
Near Paducah, Ky. ....	P. B. M. 926 ...	93.977	308.324
Near Paducah, Ky. ....	P. B. M. 927 ...	94.359	309.577
In Kentucky, near Metropolis, Ill. ....	P. B. M. 929 ...	93.050	305.287
In Kentucky, near Metropolis, Ill. ....	P. B. M. 930 ...	95.291	312.634
In Kentucky, near Metropolis, Ill. ....	P. B. M. 931 ...	93.021	305.165
In Kentucky, near Metropolis, Ill. ....	P. B. M. 932 ...	94.409	309.741
In Kentucky, near Metropolis, Ill. ....	P. B. M. 933 ...	94.424	309.788
In Kentucky, near Metropolis, Ill. ....	P. B. M. 934 ...	94.506	310.355
In Kentucky, near Metropolis, Ill. ....	P. B. M. 935 ...	93.685	307.405
Near Ragland, Ky. ....	P. B. M. 936 ...	94.441	309.976
Near Ragland, Ky. ....	P. B. M. 937 ...	93.314	306.147
Near Ragland, Ky. ....	P. B. M. 938 ...	94.493	310.017
Near Ragland, Ky. ....	P. B. M. 939 ...	98.003	321.531
Near Ragland, Ky. ....	P. B. M. 940 ...	96.749	317.417
Near Ragland, Ky. ....	P. B. M. 941 ...	92.593	303.783
Near Ogden, Ky. ....	P. B. M. 942 ...	96.611	316.964
Near Ogden, Ky. ....	P. B. M. 943 ...	97.239	319.024
Near Ogden, Ky. ....	P. B. M. 944 ...	95.151	312.174
Near Ogden, Ky. ....	P. B. M. 945 ...	96.606	316.948
In Kentucky, near Grand Chain, Ill. ....	P. B. M. 947 ...	97.773	320.778
In Kentucky, near Grand Chain, Ill. ....	P. B. M. 948 ...	96.732	317.862

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
In Kentucky, near Grand Chain, Ill.....	P. B. M. 949..	93.370	306.331
In Kentucky, near Grand Chain, Ill.....	P. B. M. 950..	94.051	308.566
In Kentucky, near Caledonia, Ill.....	P. B. M. 951..	94.494	310.020
In Kentucky, near Caledonia, Ill.....	P. B. M. 952..	92.595	303.788
In Kentucky, near Caledonia, Ill.....	P. B. M. 953..	96.163	315.494
In Kentucky, near Caledonia, Ill.....	P. B. M. 954..	94.138	309.520
Near Humphries Creek, Ky.	P. B. M. 955..	93.858	307.933
Near Humphries Creek, Ky.	P. B. M. 956..	92.320	302.887
Near Holloway, Ky.	P. B. M. 957..	91.958	301.700
Near Holloway, Ky.	P. B. M. 958..	97.286	319.178
Near Holloway, Ky.	P. B. M. 959..	96.864	317.794
Near Holloway, Ky.	P. B. M. 960..	97.190	318.805
Holloway, Ky. ....	P. B. M. 961..	97.320	319.292
Near Holloway, Ky. ....	P. B. M. 962..	96.269	315.841
Near Holloway, Ky.	P. B. M. 963..	94.850	311.186
Near East Cairo, Ky.	P. B. M. 964..	96.267	315.836
Near East Cairo, Ky. ....	P. B. M. 965..	95.153	312.180
Near East Cairo, Ky. ....	P. B. M. 966..	94.296	309.369
Near East Cairo, Ky. ....	P. B. M. 967..	93.663	307.293
Near East Cairo, Ky. ....	P. B. M. 968..	93.647	307.241
High Bridge, Ky. ....	J, ..	232.834	763.890
Near High Bridge, Ky. ....	K, ..	234.686	769.966
Between High Bridge and Burgin, Ky....	L, ..	264.987	869.378
Burgin, Ky. ....	M, ..	274.677	901.169
Burgin, Ky. ....	N, ..	273.508	897.334
Faulconer, Ky. ....	O, ..	271.216	889.814
Near Danville, Ky. ....	P, ..	280.872	921.494
Danville, Ky. ....	Q, ..	301.285	988.466
Near Junction City, Ky. ....	R, ..	313.322	1027.957
Near Junction City, Ky. ....	S, ..	289.539	949.929
Near Moreland, Ky. ....	T, ..	303.053	994.266
Moreland, Ky. ....	U, ..	333.488	1094.119
Near Moreland, Ky. ....	V, ..	292.084	958.279
McKinney, Ky. ....	W, ..	308.271	1011.386
Near McKinney Ky. ....	X, ..	278.428	913.476
Near Kings Mountain, Ky.*.....	Y, ..	305.038	1000.779
Kings Mountain, Ky. ....	Z, ..	353.306	1159.138
Waynesburg, Ky. ....	A, ..	369.514	1212.314
Eubank, Ky. ....	B, ..	356.137	1168.426
Floyd, Ky. ....	C, ..	340.398	1116.789

## ADJUSTMENT AND ELEVATIONS

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Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Near Pulaski, Ky.	D <sub>1</sub>	340.566	1117.340
Science Hill, Ky.	E <sub>1</sub>	342.904	1125.011
Norwood, Ky.	F <sub>1</sub>	326.951	1072.672
Near Somerset, Ky.	G <sub>1</sub>	292.241	958.794
Somerset, Ky.	A <sub>1</sub>	262.024	859.657
Somerset, Ky.	B <sub>1</sub>	268.005	879.280
Somerset, Ky.	C <sub>1</sub>	272.108	892.741
Somerset, Ky.	D <sub>2</sub>	268.363	880.454
Near Burnside, Ky.	E <sub>2</sub>	249.177	817.508
Burnside, Ky.	F <sub>2</sub>	235.332	772.085
Near Sloans Valley, Ky.	G <sub>2</sub>	280.439	920.074
Alpine, Ky.	H <sub>2</sub>	290.058	951.632
Greenwood, Ky.	I <sub>2</sub>	383.515	1192.632
Flat Rock, Ky.	J <sub>2</sub>	393.551	1291.175
Whitley, Ky.	K <sub>2</sub>	401.546	1317.406
Pine Knot, Ky.	L <sub>2</sub>	430.209	1411.444
Between Strunk, Ky., and Isham, Tenn	M <sub>2</sub>	415.308	1362.556
Fulton, Ky.	No. XI	109.864	360.445
Alexander, Ky.	No. X	112.931	370.508
Clinton, Ky.	No. IX	119.275	391.321
Arlington, Ky.	No. VIII	111.427	365.573
Bardwell, Ky.	No. VII	119.732	392.821
Near Bardwell, Ky.	No. VI	97.417	319.609
Fort Jefferson, Ky.	No. V	98.668	323.713
Wickliffe, Ky.	No. IV	101.983	334.589
East Cairo, Ky.	No. III	99.053	324.976
Newport, Ky.	A	156.192	512.440
Newport, Ky.	U. S. E.	152.534	500.439
Covington, Ky.	B	156.548	513.608
Ludlow, Ky.	C	162.134	531.935
Crescent Springs, Ky.	D	237.475	779.116
Erlanger, Ky.	E	279.016	915.405
Dixon, Ky.	F	282.004	925.208
Richwood, Ky.	G	286.150	938.810
Walton, Ky.	H	278.533	913.820
Near Crittenden, Ky.	I	273.038	895.792
Crittenden, Ky.	J	281.565	923.768
Sherman, Ky.	K	284.890	934.677
Dry Ridge, Ky.	L	292.011	958.039
Williamstown, Ky.	M	297.064	974.617

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Mason, Ky. ....	N .....	278.908	915.051
Elanchett, Ky. ....	O .....	286.971	941.504
Corinth, Ky. ....	P .....	292.271	958.892
Hinton Ky. ....	Q .....	290.606	953.430
Sadieville, Ky. ....	R .....	261.700	858.594
Near Sadieville, Ky. ....	S .....	263.843	865.625
Rogers Gap, Ky. ....	T .....	275.398	903.535
Near Kinkaid, Ky. ....	U .....	255.070	836.842
Near Georgetown, Ky. ....	V .....	260.848	855.799
Georgetown, Ky. ....	W .....	267.325	877.049
Near Donerail, Ky. ....	X .....	265.403	870.743
Greendale, Ky. ....	Y .....	285.248	935.851
Hillenmeyer, Ky. ....	Z .....	286.354	839.480
Lexington, Ky. ....	A <sub>1</sub> .....	298.568	979.552
Near Lexington, Ky. ....	B <sub>1</sub> .....	308.166	1011.041
Brannon, Ky. ....	C <sub>1</sub> .....	313.527	1028.630
Near Brannon, Ky. ....	D <sub>1</sub> .....	297.197	975.054
Nicholasville, Ky. ....	E <sub>1</sub> .....	289.917	951.169
Nicholasville, Ky. ....	F <sub>1</sub> .....	288.655	947.029
Jessamine, Ky. ....	G <sub>1</sub> .....	269.934	885.608
Wilmore, Ky. ....	H <sub>1</sub> .....	267.670	878.181
Near High Bridge, Ky. ....	I <sub>1</sub> .....	273.423	897.055
In Kentucky, near Evans Landing, Ind.	P. B. M. 629....	121.827	399.695
In Kentucky, near Browns Landing, Ind.	P. B. M. 630....	120.287	394.642
In Kentucky, near Browns Landing, Ind.	P. B. M. 631....	120.856	396.510
In Kentucky, near Mosquito Creek, Ind.	P. B. M. 632....	124.593	408.770
Near Rock Haven, Ky. ....	P. B. M. 633....	123.838	406.292
Near Rock Haven, Ky. ....	P. B. M. 634....	124.860	409.644
Rock Haven, Ky. ....	P. B. M. 635....	119.305	391.419
Rock Haven, Ky. ....	P. B. M. 635A	115.696	379.579
Near Rock Haven, Ky. ....	P. B. M. 636....	121.990	400.230
Near Dittoes Landing, Ky. ....	P. B. M. 637....	125.177	410.684
Near Dittoes Landing, Ky. ....	P. B. M. 638....	120.508	395.366
In Kentucky, near Tobacco Landing, Ind.	P. M. G. 639....	121.978	400.188
Near Brandenburg, Ky. ....	P. B. M. 640....	122.153	400.765
Near Brandenburg, Ky. ....	P. B. M. 641....	127.458	418.169
Near Brandenburg, Ky. ....	P. B. M. 642....	119.835	393.159
Brandenburg, Ky. ....	P. B. M. 643....	135.920	445.931
Brandenburg, Ky. ....	P. B. M. 643A	137.521	451.183
Near Brandenburg, Ky. ....	P. B. M. 644....	121.503	398.630

## ADJUSTMENT AND ELEVATIONS

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Place	Designation of bench mark	Standard elevation	
		Meters	Feet
In Kentucky, near Mauckport, Ind. ....	P. B. M. 645 .	120.370	394.915
In Kentucky, near Mauckport, Ind. ....	P. B. M. 646 .	122.881	403.153
In Kentucky, near Mauckport, Ind. ....	P. B. M. 647 .	124.721	409.188
In Kentucky, near Mauckport, Ind. ....	P. B. M. 648 .	120.134	394.140
In Kentucky, near Mauckport, Ind. ....	P. B. M. 651 .	126.042	413.522
Near Crecelius, Ky. ....	P. B. M. 654 .	121.625	399.032
Near Crecelius, Ky. ....	P. B. M. 655 .	127.466	418.195
Near Crecelius, Ky. ....	P. B. M. 656 .	121.201	397.640
Near Crecelius, Ky. ....	P. B. M. 657 .	119.027	390.509
Near Peckenpaugh, Ky. ....	P. B. M. 658 .	120.739	396.125
In Kentucky, near Leavenworth, Ind. ....	P. B. M. 660 .	129.243	424.025
In Kentucky, near Leavenworth, Ind. ....	P. B. M. 661 .	127.868	419.513
Leavenworth, Ind. ....	P. B. M. 661A	128.076	420.197
Leavenworth, Ind. ....	High Water		
	1883 . . . . .	130.553	428.324
Leavenworth, Ind. ....	High Water		
	1884 . . . . .	131.011	429.824
In Kentucky, near Leavenworth, Ind. ....	P. B. M. 662 .	120.457	395.199
In Kentucky, near Leavenworth, Ind. ....	P. B. M. 663 .	122.125	400.873
Near Crecelius, Ky. ....	P. B. M. 664 .	121.106	397.329
Near Crecelius, Ky. ....	P. B. M. 665 .	121.056	397.166
Crecelius, Ky. ....	P. B. M. 666 .	120.227	394.446
Near Crecelius, Ky. ....	P. B. M. 667 .	112.737	369.872
Near Crecelius, Ky. ....	P. B. M. 668 .	118.766	389.652
Near Cedar Branch, Ky. ....	P. B. M. 669 .	116.765	383.086
Near Cedar Branch, Ky. ....	P. B. M. 670 .	117.221	384.581
Near Wolfe Creek, Ky. ....	P. B. M. 671 .	117.883	386.754
Near Wolfe Creek, Ky. ....	P. B. M. 672 .	117.834	386.611
Near Wolfe Creek, Ky. ....	P. B. M. 673 .	117.635	385.941
Near Wolfe Creek, Ky. ....	P. B. M. 674 .	119.320	391.400
In Kentucky, near Alton, Ind. ....	P. B. M. 678 .	120.024	393.779
Near Concordia, Ky. ....	P. B. M. 679 .	121.957	400.122
Near Concordia, Ky. ....	P. B. M. 680 .	124.616	409.010
Near Concordia, Ky. ....	P. B. M. 681 .	119.001	390.422
Near Concordia, Ky. ....	P. B. M. 682 .	116.652	382.716
Concordia, Ky. ....	P. B. M. 683 .	123.852	406.338
Near Concordia, Ky. ....	P. B. M. 684 .	117.469	385.397
Near Concordia, Ky. ....	P. B. M. 685 .	116.875	383.447
Flint Island, Ky. ....	P. B. M. 686 .	117.191	384.466
Flint Island, Ky. ....	P. B. M. 687 .	117.636	385.943

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Flint Island, Ky. ....	P. B. M. 687A	112.897	370.395
Burchs Landing, Ky. ....	P. B. M. 688	117.315	384.890
Near Chenault, Ky. ....	P. B. M. 689	119.586	392.343
Chenault, Ky. ....	P. B. M. 690	122.360	401.443
Near Chenault, Ky. ....	P. B. M. 691	118.898	390.084
Near Lahant, Ky. ....	P. B. M. 692	115.828	380.912
Near Lahant, Ky. ....	P. B. M. 693	117.627	385.913
Near Ammos, Ky. ....	P. B. M. 694	115.823	379.996
Near Ammos, Ky. ....	P. B. M. 695	116.541	382.352
Near Stephensport, Ky. ....	P. B. M. 696	120.210	394.389
Near Stephensport, Ky. ....	P. B. M. 697	126.573	415.264
Stephensport, Ky. ....	P. B. M. 697A	116.897	383.519
Near Stephensport, Ky. ....	P. B. M. 698	117.420	385.234
Near Addison, Ky. ....	P. B. M. 699	116.174	381.148
Near Addison, Ky. ....	P. B. M. 700	120.770	396.225
Holt, Ky. ....	P. B. M. 701	121.792	399.580
Near Holt, Ky. ....	P. B. M. 702	118.686	389.386
Near Holt, Ky. ....	P. B. M. 703	116.753	383.048
Near Cloverport, Ky. ....	P. B. M. 704	118.261	387.996
Near Cloverport, Ky. ....	P. B. M. 705	115.111	377.659
Near Cloverport, Ky. ....	P. B. M. 706	116.562	382.422
Cloverport, Ky. ....	P. B. M. 707	115.750	379.755
Cloverport, Ky. ....	P. B. M. 707A	125.825	412.812
Cloverport, Ky. ....	High Water		
	1884	126.991	416.637
Cloverport, Ky. ....	P. B. M. 708	126.747	415.835
Near Cloverport, Ky. ....	P. B. M. 709	116.519	382.279
Near Cloverport, Ky. ....	P. B. M. 710	120.493	395.317
Near Skillman, Ky. ....	P. B. M. 711	121.441	398.428
Near Skillman, Ky. ....	P. B. M. 712	118.818	389.814
Near Skillman, Ky. ....	P. B. M. 713	116.307	381.583
Near Skillman, Ky. ....	P. B. M. 714	114.621	376.051
Near Henderson, Ky. ....	P. B. M. 795	107.614	353.065
Near Henderson, Ky. ....	P. B. M. 796	109.914	360.610
Near Henderson, Ky. ....	P. B. M. 797	107.401	352.364
Henderson, Ky. ....	Ref. Point	103.306	338.929
Henderson, Ky. ....	Old B. M.	103.200	338.921
Henderson, Ky. ....	High Water.		
	1884	115.025	377.378
Henderson, Ky. ....	P. B. M. 797A	114.752	376.483

## ADJUSTMENT AND ELEVATIONS

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Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Henderson, Ky.	P. B. M. 798	118.177	387.718
Near Henderson, Ky.	P. B. M. 799	107.692	353.319
Near Henderson, Ky.	P. B. M. 800	108.433	355.752
Near Henderson, Ky.	P. B. M. 801	110.839	363.644
Near Henderson, Ky.	P. B. M. 802	110.604	362.872
Near McDonalds Landing, Ky.	P. B. M. 803	117.042	383.995
Near McDonalds Landing, Ky.	P. B. M. 805	112.466	368.983
Near McDonalds Landing, Ky.	P. B. M. 806	110.516	362.585
Near Cypress Bend, Ky.	P. B. M. 807	110.422	362.276
Near Cypress Bend, Ky.	P. B. M. 808	107.390	352.329
Cypress Bend, Ky.	P. B. M. 809	106.227	348.514
In Kentucky, near West Franklin, Ind.	P. B. M. 810	106.544	349.552
In Kentucky, near West Franklin, Ind.	P. B. M. 811	105.670	348.685
Near Diamond Island, Ky.	P. B. M. 812	106.236	348.543
Near Diamond Island, Ky.	P. B. M. 813	109.017	357.668
Near Diamond Island, Ky.	P. B. M. 815	108.411	355.678
Near Diamond Island, Ky.	P. B. M. 816	109.431	359.015
Near Alzey, Ky.	P. B. M. 817	104.220	341.927
Near Alzey, Ky.	P. B. M. 818	108.192	354.959
In Kentucky, near Mount Vernon, Ind.	P. B. M. 819	109.429	359.019
In Kentucky, near Mount Vernon, Ind.	P. B. M. 820	108.807	356.978
In Kentucky, near Mount Vernon, Ind.	P. B. M. 821	109.657	359.765
In Kentucky, near Mount Vernon, Ind.	P. B. M. 822	109.111	348.323
In Kentucky, near Mount Vernon, Ind.	P. B. M. 823	105.193	345.121
In Kentucky, near Mount Vernon, Ind.	P. B. M. 824	105.592	346.128
Near Slim Island, Ky.	P. B. M. 825	103.565	339.780
Near Slim Island, Ky.	P. B. M. 826	108.682	356.500
Near Slim Island, Ky.	P. B. M. 827	107.588	352.979
Near Slim Island, Ky.	P. B. M. 828	105.038	344.612
Near Slim Island, Ky.	P. B. M. 829	107.140	351.408
Near Slim Island, Ky.	P. B. M. 830	104.416	342.570
Near Uniontown, Ky.	P. B. M. 831	104.256	342.048
Near Uniontown, Ky.	P. B. M. 833	107.847	353.828
Near Uniontown, Ky.	P. B. M. 834	105.735	346.900
Near Uniontown, Ky.	P. B. M. 835	101.941	334.451
Near Uniontown, Ky.	P. B. M. 836	105.096	344.802
Near Uniontown, Ky.	P. B. M. 837	104.966	344.375
Near Wabash Island, Ky.	P. B. M. 838	104.847	343.987
Near Wabash Island, Ky.	P. B. M. 839	103.583	339.839
Near Wabash Island, Ky.	P. B. M. 840	102.867	337.490

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Near Wabash Island, Ky. ....	P. B. M. 841....	103.228	338.675
Near Wabash Island, Ky. ....	P. B. M. 842....	103.082	338.195
Near Wabash Island, Ky. ....	P. B. M. 843....	100.911	331.072
Near Raleigh, Ky. ....	P. B. M. 844....	107.661	353.219
Raleigh, Ky. ....	P. B. M. 845....	106.790	350.361
Near Browns Island, Ky. ....	P. B. M. 846....	106.866	350.609
Near Browns Island, Ky. ....	P. B. M. 847....	106.559	349.601
In Kentucky, near Shawneetown, Ill.....	P. B. M. 848....	105.159	345.009
In Kentucky, near Shawneetown, Ill.....	P. B. M. 849....	101.276	332.271
In Kentucky, near Shawneetown, Ill.....	P. B. M. 850....	105.349	345.631
In Kentucky, near Shawneetown, Ill.....	P. B. M. 851....	105.079	344.746
In Kentucky, near Shawneetown, Ill.....	P. B. M. 852..	101.605	333.348
Near Cincinnati Towhead, Ky. ....	P. B. M. 853....	101.755	333.842
Near Cincinnati, Towhead, Ky.....	P. B. M. 854..	99.695	327.082
Near Cincinnati, Towhead, Ky.....	P. B. M. 855....	103.866	340.768
Near Dekoven, Ky. ....	P. B. M. 856....	103.250	338.746
Near Dekoven, Ky. ....	P. B. M. 857....	101.019	331.426
Near Dekoven, Ky. ....	P. B. M. 858....	98.939	324.602
Near Dekoven, Ky. ....	P. B. M. 859....	101.888	334.279
Near Dekoven, Ky. ....	P. B. M. 860....	101.035	331.479
Near Dekoven, Ky. ....	P. B. M. 860A	103.690	340.189
Near Caseyville, Ky. ....	P. B. M. 862....	103.912	340.917
Near Caseyville, Ky. ....	P. B. M. 863....	102.635	336.728
Near Caseyville, Ky. ....	P. B. M. 864....	104.208	341.888
Near Weston, Ky. ....	P. B. M. 865....	100.787	330.665
Near Weston, Ky. ....	P. B. M. 866....	105.315	345.520
Near Fords Ferry, Ky. ....	P. B. M. 867....	104.744	343.649
Fords Ferry, Ky. ....	P. B. M. 868....	99.630	326.868
In Kentucky, near Cave-in-Rock, Ill.....	P. B. M. 869....	102.833	337.379
In Kentucky, near Cave-in-Rock, Ill.....	P. B. M. 870....	103.376	339.160
In Kentucky, near Cave-in-Rock, Ill.....	P. B. M. 871....	99.908	237.781
Near Tolu, Ky. ....	P. B. M. 872....	100.728	330.472
Near Tolu, Ky. ....	P. B. M. 873....	102.883	337.541
Near Tolu, Ky. ....	P. B. M. 874....	102.721	337.009
Near Tolu, Ky. ....	P. B. M. 875....	97.839	320.992
Tolu, Ky. ....	P. B. M. 876....	103.211	338.618
Near Carrsville, Ky. ....	P. B. M. 880....	99.903	327.764
Near Carrsville, Ky. ....	P. B. M. 881....	99.190	325.427
Near Carrsville, Ky. ....	P. B. M. 882....	98.507	323.184
Near Carrsville, Ky. ....	P. B. M. 883....	101.711	333.698

## ADJUSTMENT AND ELEVATIONS

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Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Near Carraville, Ky. ....	P. B. M. 884 ...	104.308	342.217
Near Carraville, Ky. ....	P. B. M. 885..	96.623	317.003
Near Carrsville, Ky. ....	P. B. M. 886	103.654	340.070
Near Carrsville, Ky. ....	P. B. M. 887...	96.969	318.140
Fort Jefferson, Ky. ....	P. B. M. 6 ....	97.941	321.328
Columbus, Ky. ....	P. B. M. 7 ....	96.055	315.140
Columbus, Ky. ....	P. B. M. 8 ....	93.846	307.893
Columbus, Ky. ....	P. B. M. 9 ....	94.384	309.658
Columbus, Ky. ....	P. B. M. 10 ....	137.861	452.299
Near Worshams Landing, Ky. ....	P. B. M. 11 ..	93.486	306.712
Near Worshams Landing, Ky. ....	P. B. M. 12 ....	92.330	302.919
Near Hickman, Ky. ....	P. B. M. 13.....	91.895	301.492
Hickman, Ky. ....	P. B. M. 14 ....	109.787	360.226
Hickman, Ky. ....	P. B. M. 15 ...	94.502	310.045
Near Hickman, Ky. ....	P. B. M. 16 ...	91.740	300.984
Louisville, Ky. ....	R. R. Bridge ..	136.481	447.771
Georgetown, Ky. ....	U. S. G. S. 866	263.818	865.543
Near Georgetown, Ky. ....	U. S. G. S. 798	243.142	797.709
Duvall, Ky. ....	U. S. G. S. 810	256.152	840.392
Stamping Ground, Ky. ....	U. S. G. S. 802	244.555	802.344
Near Stamping Ground, Ky. ....	U. S. G. S. 714	217.500	713.581
Switzer, Ky. ....	U. S. G. S. 732	223.282	732.551
Near Switzer, Ky. ....	U. S. B. M. 744	226.912	744.460
Elkhorn, Ky. ....	U. S. G. S. 673	205.199	673.224
Steadmantown, Ky. ....	U. S. G. S. 714	217.752	714.408
Near Steadmantown, Ky. ....	U. S. B. M. 675	205.677	674.792
Frankfort, Ky. ....	U. S. G. S. 511	155.816	511.206
Frankfort, Ky. ....	U. S. G. S. 512	156.159	512.332
Near Kennebec, Ky. ....	U. S. G. S. 537	163.665	536.958
Near Kennebec, Ky. ....	U. S. B. M. 562	171.281	561.996
Near Benson, Ky. ....	Bridge .....	182.802	599.743
Near Benson, Ky. ....	U. S. G. S. 600	182.802	599.743
Hatton, Ky. ....	U. S. G. S. 714	217.772	714.474
Near Hatton, Ky. ....	U. S. G. S. 829	252.862	829.598
Near Hatton, Ky. ....	U. S. G. S. 881	226.111	743.625
Bagdad, Ky. ....	U. S. G. S. 912	277.959	911.937
Christiansburg, Ky. ....	U. S. G. S. 903	275.357	903.401
Near Christiansburg, Ky. ....	U. S. B. M. 882	226.111	743.625
Near Christiansburg, Ky. ....	U. S. G. S. 849	258.901	849.411
Near Christiansburg, Ky. ....	U. S. G. S. 724	226.111	743.625

Place	Designation of bench mark	Standard elevation	
		Meters	Feet
Shelbyville, Ky. ....	U. S. G. S. 760	231.560	759.709
Scotts Station, Ky. ....	U. S. G. S. 750	228.643	750.139
Near Field Station, Ky. ....	U. S. G. S. 725	220.962	724.939
Simpsonville, Ky. ....	U. S. G. S. 825	251.395	824.785
Connor, Ky. ....	U. S. G. S. 701	213.797	701.433
Leng Run, Ky. ....	U. S. G. S. 629	191.841	629.398
Near Eastwood, Ky. ....	U. S. G. S. 640	195.070	639.992
Near Beckley, Ky. ....	U. S. G. S. 595	181.424	595.222
Near Beckley, Ky. ....	U. S. G. S. 634	193.338	634.310
Near Avoca, Ky. ....	U. S. G. S. 652	198.914	652.603
Anchorage, Ky. ....	U. S. G. S. 724	220.756	724.264
Lyndon, Ky. ....	U. S. G. S. 561	171.141	561.485
Near Warwick Villa, Ky. ....	U. S. G. S. 539	164.282	538.982
St. Mathews, Ky. ....	U. S. G. S. 550	167.635	549.982
Near St. Matthews, Ky. ....	U. S. G. S. 548	166.989	547.863
Near St. Matthews, Ky. ....	U. S. G. S. 553	168.759	553.670
Louisville, Ky. ....	No. 49 .....	163.958	537.919
Louisville, Ky. ....	B. M. 86 or		
	No. 16 .....	138.481	454.333
Louisville, Ky. ....	B. M. 13 .....	138.388	454.028

# **CHAPTER X.** **ELEVATION, ABOVE SEA, OF POINTS IN** **KENTUCKY.**

Compiled from Co-operative Work of the Kentucky Geological Survey and  
United States Geological Survey and From the Various  
Railroad and River Surveys  
(Complete to Aug. 1, 1919.)

No.	Place	County	Station	Eleva- tion.
1	Adairville.....	Logan.....	L. & N. R. R.....	530
2	Addison.....	Breckinridge.....	L. H. & St. L. R. R.....	371
3	Aden.....	Carter.....	C. & O. R. R.....	326
4	Adolphus.....	Allen.....	U. S. G. S.....	657
5	Aetnaville, P. O.....	Ohio.....	U. S. B. M.....	444
6	Alexander.....	Fulton.....	U. S. C. G. S.....	368
7	Allen.....	Floyd.....	U. S. B. M.....	633
8	Allensville.....	Todd.....	L. & N. R. R.....	564
9	Allen.....	Boyd.....	U. S. B. M.....	629
10	Almo.....	Calloway.....	N. C. & St. L. R. R.....	440
11	Alma House.....	Jefferson.....	I. C. R. R.....	464
12	Alonzo.....	Floyd.....	U. S. B. M.....	643
13	Alphoretta.....	Floyd.....	U. S. B. M.....	662
14	Alpine.....	McCreary.....	Q. N. C. R. R.....	1,006
15	Altamont.....	Laurel.....	L. & N. R. R.....	1,163
16	Alton.....	Anderson.....	S. R. R.....	722
17	Alton.....	Anderson.....	U. S. B. M.....	839
18	Ambrose.....	Jessamine.....	U. S. B. M.....	867
19	Anchorage.....	Jefferson.....	U. S. B. M.....	724
20	Anderson.....	Logan.....	U. S. B. M.....	637
21	Anderson.....	Todd.....	E. & G. R. R.....	650
22	Anderson Ferry.....	Boone.....	L. W. in Ohio River.....	429
23	Andersonville.....	Davless.....	U. S. B. M.....	485
24	Anton.....	Hopkins.....	U. S. B. M.....	684
25	Apex.....	Christian.....	U. S. B. M.....	409
26	Argillite.....	Greenup.....	E. K. R. R.....	524
27	Argillite.....	Greenup.....	U. S. B. M.....	567
28	Argyle.....	Powell.....	L. & E. Station.....	722
29	Arlington.....	Carlisle.....	B. M. near I. C. R. R. Sta.....	363
30	Artemus.....	Knox.....	L. & N. R. R.....	995
31	Ashbyburg.....	Hopkins.....	U. S. B. M.....	386
32	Ashcamp.....	Pike.....	U. S. B. M.....	1,084
33	Ashland.....	Boyd.....	C. & O. R. R.....	552
34	Ashland.....	Boyd.....	L. W. in Ohio River.....	486
35	Askia.....	Breckinridge.....	L. H. & St. L. R. R.....	613
36	Athens.....	Fayette.....	C. & O. R. R.....	1,006
37	Athol.....	Breathitt.....	L. & E. R. R. Station.....	744
38	Auburn.....	Logan.....	L. & N. R. R.....	606
39	Augusta.....	Bracken.....	L. W. in Ohio River.....	444
40	Augusta.....	Bracken.....	C. & O. R. R.....	606
41	Austerlitz.....	Bourbon.....	L. & N. R. R.....	918
42	Auxier.....	Johnson.....	U. S. B. M. C. & O. Station.....	630
43	Avenstokey.....	Anderson.....	L. S. R. R.....	723
44	Avon.....	Fayette.....	L. & E. Station.....	944
45	Bacon Creek.....	Hart.....	L. & N. R. R.....	621

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
46	Bagdad	Shelby	U. S. B. M. R. R. Station	512
47	Baker	Caldwell	U. S. B. M. R. R. Station	471
48	Bakersport	Hopkins	U. S. B. M.	397
49	Ballard	Anderson	B. M. near P. O.	696
50	Ballard	Floyd	U. S. B. M.	683
51	Bancroft	Muhlenberg	U. S. B. M.	498
52	Bank Lick	Kenton	L. & N. R. R.	829
53	Banner	Floyd	U. S. G. S.	634
54	Barboursville	Knox	L. & N. R. R.	960
55	Bardstown	Nelson	L. & N. R. R.	637
56	Bardstown Jct.	Bullitt	L. & N. R. R.	417
57	Bardwell	Carlisle	B. M. on C. H.	390
58	Barnes	Carroll	L. & N. R. R.	665
59	Barnsley	Hopkins	U. S. B. M.	493
60	Barren Fork	McCreary	Q. & C. R. R.	1,281
61	Barren River	Barren	Lock 1. Top of wall	423
62	Bart	Wayne	Cumberland River	569
63	Bart	Wayne	U. S. B. M. near P. O.	641
64	Baskett	Henderson	U. S. B. M.	397
65	Bath	Knott	U. S. B. M.	1,281
66	Baugh	Logan	L. & N. R. R.	448
67	Beals	Henderson	U. S. B. M.	390
68	Beard's	Oldham	L. & N. R. R.	761
69	Beattyville	Lee	L. W. in Kentucky River	619
70	Beattyville Jct.	Lee	U. S. B. M. L. & E. Station	690
71	Beattyville Jct.	Lee	L. & E. R. R.	712
72	Beaver Creek	Floyd	C. & O. R. R.	651
73	Beaver Dam	Ohio	U. S. B. M.	413
74	Beaver Gap	Knott-Letcher	U. S. B. M.	1,492
75	Beckley	Jefferson	U. S. B. M. L. & N. Station	599
76	Beda	Ohio	U. S. B. M.	546
77	Beddow	Pike	C. & O. R. R.	1,314
78	Bedford	Bourbon	L. & N. R. R.	832
79	Beechgrove	McLean	U. S. B. M.	408
80	Belamy Store	Ohio	U. S. B. M.	440
81	Belcher	Pike	U. S. B. M.	755
82	Belcourt	Webster	U. S. B. M.	397
83	Bellevue	Henry	L. & N. R. R.	875
84	Bell's Mill Ford	Bullitt	U. S. B. M.	423
85	Belmont	Bullitt	L. & N. R. R.	431
86	Belton	Muhlenberg	L. & N. R. R.	409
87	Benson	Franklin	U. S. B. M. R. R. Station	598
88	Benton	Marshall	N. C. & St. L. R. R.	380
89	Berea	Madison	L. & N. R. R.	943
90	Berkley	Carlisle	M. & O. R. R.	355
91	Berry	Harrison	L. & N. R. R.	640
92	Bethany	Jefferson	U. S. B. M.	452
93	Bethlehem	Hardin	I. C. R. R.	732
94	Betsey Layne	Floyd	U. S. B. M.	646
95	Beulah	Hopkins	U. S. B. M.	540
96	Bevier	Muhlenberg	L. & N. R. R.	400
97	Big Clifty	Grayson	I. C. R. R.	682

## ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
98	Big Sandy Jct.	Boyd	C. & O. R. R.	558
99	Big Sandy River	Boyd	L. W. at mouth	498
100	Big Sandy River	Lawrence	L. W. at mouth of Big Blaine	521
101	Big Sandy River	Lawrence	L. W. at Louisa	526
102	Big Sandy River	Martin	L. W. at mouth of Rockcastle	548
103	Big Sandy River	Martin	L. W. at Richardson	549
104	Big Sandy River	Martin	L. W. at mouth of Paint Cr.	587
105	Big Sandy River	Johnson	L. W. at mouth of Paint Cr.	587
106	Big Sandy River	Floyd	L. W. at mouth of John Cr.	594
107	Big Sandy River	Floyd	L. W. at Prestonsburg	606
108	Big Sandy River	Floyd	L. W. at mouth of Mud Creek	637
109	Big Sandy River	Pike	L. W. at Pikeville	680
110	Big Sandy River	Pike	L. W. at Breaks of Sandy	854
111	Big Spring	Bullitt	L. & N. R. R.	514
112	Birk	Davless	U. S. B. M.	353
113	Bishop	Jefferson	L. S. R. R.	459
114	Blackburn	Union	U. S. B. M.	348
115	Blackford	Webster	U. S. B. M.	362
116	Blackey	Letcher	L. & E. R. R.	596
117	Blackford	Webster	U. S. B. M.	363
118	Blanchet	Grant	Q. & C. R. R.	953
119	Blandville	Ballard	Weather Bureau	445
120	Bloomfield	Nelson	U. S. B. M.	609
121	Bloomfield	Nelson	L. & N. R. R.	595
122	Blue Cut	Logan	L. & N. R. R.	410
123	Bluff City	Henderson	U. S. B. M.	394
124	Bluff Spring	Christian	U. S. B. M.	573
125	Boaz	Graves	I. C. R. R.	387
126	Bohon	Mercer	U. S. B. M.	394
127	Boldman	Pike	U. S. B. M.	653
128	Bolts Fork	Boyd	U. S. B. M.	653
129	Bonanza	Floyd		640
130	Bonds	McCracken	I. C. R. R.	361
131	Bonita	Woodford	U. S. B. M.	397
132	Bonnleville	Hart	L. & N. R. R.	646
133	Boones Fork	Letcher	U. S. B. M.	1,204
134	Boonesboro	Clark	L. W. in Kentucky River	539
135	Boone's Gap	Madison	L. & N. R. R.	1,120
136	Booneville	Owsley	L. W. in Kentucky River	651
137	Booth's	Hardin	L. & N. R. R.	425
138	Bordley	Union	U. S. B. M.	416
139	Bosco	Floyd	U. S. B. M.	690
140	Boston	Jefferson	U. S. B. M.	515
141	Boston	Nelson	L. & N. R. R.	431
142	Bostonia	Mercer	U. S. B. M.	747
143	Bourne	Garrard	U. S. B. M.	528
144	Bowling Green	Warren	Weather Bureau	499
145	Boxville	Union	U. S. B. M.	443
146	Boyd	Harrison	L. & N. R. R.	674
147	Bracht	Kenton	Q. & C. R. R.	919
148	Bracktown	Fayette	U. S. B. M.	853
149	Bradshaw	Todd	E. & G. R. R.	580

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
150	Brannon	Jessamine	U. S. B. M.	1,041
151	Brandenburg	Meade	L. W. in Ohio River	356
152	Brandenburg Sta.	Meade	L. H. & St. L. R. R.	594
153	Bratcher	Grayson	I. C. R. R.	445
154	Braxton	Mercer	U. S. B. M.	363
155	Breaks of Sandy	Pike	L. W. in Big Sandy River	354
156	Breton	Webster	U. S. B. M.	334
157	Bridge Fork	McCreary	Q. & C. R. R.	1,314
158	Brinkley	Knott	U. S. B. M.	1,178
159	Bristow	Warren	L. & N. R. R.	517
160	Broadhead	Rockcastle	L. & N. R. R.	903
161	Bromley	Owen	U. S. B. M.	439
162	Bronston	Pulaski	Post Office	318
163	Brooks	Bullitt	L. & N. R. R.	496
164	Brashears	Mason	C. & O. R. R.	505
165	Brownsboro	Oldham	L. & N. R. R.	770
166	Brumfield	Boyle	L. & N. R. R.	1,014
167	Brummett	Whitley	L. & N. R. R.	932
168	Brush Creek	Rockcastle	L. & N. R. R.	524
169	Bryan	Jefferson	U. S. B. M.	659
170	Buchanan	Lawrence	C. & O. R. R.	558
171	Buckhorn	Perry	B. M., mouth of Squabble	743
172	Buckner	Oldham	L. & N. R. R.	792
173	Buda	Fulton	I. C. R. R.	423
174	Buechel	Jefferson	U. S. B. M.	500
175	Buel	McLean	U. S. B. M.	446
176	Buena Vista	Lewis	C. & O. R. R.	523
177	Bull Creek	Floyd	U. S. B. M.	634
178	Burdine	Letcher	U. S. B. M.	1,443
179	Burgess	Boyd	U. S. B. M.	565
180	Burgin	Mercer	U. S. B. M.	911
181	Burlington	Boone	U. S. B. M. C. H.	843
182	Burnside	McCreary	L. W. in Cumberland River	589
183	Burnside	McCreary	Q. & C. R. R.	770
184	Bush	Breathitt	L. & E. R. R.	737
185	Butler	Pendleton	L. & N. R. R.	604
186	Butlersville	Allen	U. S. B. M.	543
187	Cadentown	Fayette	C. & O. R. R.	1,035
188	Cadmus	Lawrence	U. S. B. M.	597
189	Cairo	Henderson	U. S. B. M.	465
190	Calhoun	McLean	U. S. B. M.	392
191	California	Campbell	C. & O. R. R.	494
192	Calvary	Marion	L. & N. R. R.	609
193	Calvert	Marshall	I. C. R. R.	443
194	Campbellsburg	Henry	L. & N. R. R.	896
195	Camp Dick Rob'son	Garrard	U. S. B. M.	915
196	Campton Junction	Powell	U. S. B. M. L. & E. Station	747
197	Cane Spring	Bullitt	L. & N. R. R.	823
198	Caney	Pike	U. S. B. M.	785
199	Caneyville	Grayson	I. C. R. R.	339
200	Cannonsburg	Boyd	U. S. B. M.	604
201	Carlinburg	Henderson	U. S. B. M.	377
202	Carrollton	Carroll	L. W. in Ohio River	413

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
203	Carrollton	Carroll	L. & N. R. R.	484
204	Carra	Lewis	C. & O. R. R.	533
205	Carter	Carter	C. & O. R. R.	678
206	Catalpa	Lawrence	U. S. B. M.	563
207	Catlettsburg	Boyd	C. & O. R. R.	553
208	Catlettsburg	Boyd	L. W. in Ohio River	498
209	Catnip Hill	Jessamine	Q. & C. R. R.	975
210	Cave City	Barren	L. & N. R. R.	613
211	Cave Hill	Warren	U. S. B. M.	680
212	Cave Spring	Logan	L. & N. R. R.	558
213	Cayce	Fulton	M. & O. R. R.	400
214	Cecilia	Hardin	I. C. R. R.	711
215	Cecilian Junction	Hardin	I. C. R. R.	637
216	Cedar Grove	Pulaski	Q. & C. R. R.	947
217	Centertown	Ohio	U. S. B. M.	449
218	Central City	Muhlenberg	U. S. B. M.	428
219	Cerulean	Trigg	U. S. B. M. Station	459
220	Chambers	Montgomery	C. & O. R. R.	831
221	Chapman	Lawrence	U. S. B. M.	557
222	Chattisroy, W. Va.		N. & W. R. R.	955
223	Chavies	Perry	L. & E. R. R.	797
224	Chenowee Tunnel	Breathitt	L. & E. R. R.	938
225	Cherokee	Lawrence	U. S. B. M.	646
226	Chestnut Mtn	Knott	U. S. B. M.	1,825
227	Chicago	Marion	L. & N. R. R.	673
228	Chilesburg	Fayette	C. & O. R. R.	1,008
229	Christianburg	Shelby	U. S. B. M. R. R. Station	906
230	Clark	Jefferson	L. S. R. R.	674
231	Clark	Mason	L. & N. R. R.	754
232	Clark	Shelby	U. S. B. M.	685
233	Clark's	McCracken	I. C. R. R.	351
234	Claxton	Caldwell	U. S. B. M.	450
235	Clay	Webster	U. S. B. M.	390
236	Clay City	Powell	U. S. B. M. L. & E. Station	626
237	Clayhole	Breathitt	U. S. B. M. op. P. O.	824
238	Cleaton	Muhlenberg	U. S. B. M.	443
239	Cleopatra	McLean	U. S. B. M.	498
240	Cleringer	Pike	U. S. B. M.	733
241	Cliff	Floyd	U. S. B. M. C. & O. Station	636
242	Clifty	Todd	U. S. B. M.	806
243	Clinton	Hickman	B. M. at Court House	389
244	Cloverport	Breckinridge	L. W. in Ohio River	940
245	Cloverport	Breckinridge	L. H. & St. L. R. R.	387
246	Clyffeside	Boyd	C. & O. R. R.	548
247	Coalrun	Pike	C. & O. R. R.	676
248	Coalton	Boyd	U. S. B. M.	615
249	Cobb	Caldwell	U. S. B. M. R. R. Station	463
250	Colltown	Hopkins	U. S. B. M.	431
251	Colburg	Adair	Kentucky Geological Survey	730
252	Colby	Clark	C. & O. R. R.	1,023
253	Colesburg	Hardin	L. & N. R. R.	425
254	Colly	Letcher	U. S. B. M.	1,300
255	Colson	Letcher	U. S. B. M.	1,173

## Elevation, Above Sea, of Points in Kentucky.—Continued.

No.	Place	County	Station	Elevation.
256	Columbus	Hickman	M. & O. R. R.	313
257	Columbus	Hickman	L. W. in Mississippi River	270
258	Comer	McLean	U. S. B. M.	460
259	Concord	Lewis	C. & O. R. R.	518
260	Concordia	Meade	L. W. in Ohio River	246
261	Congleton	McLean	U. S. B. M.	464
262	Conner	Shelby	U. S. B. M. L. & N. Station	706
263	Consolation	Shelby	L. S. R. R.	368
264	Constance	Boone	B. M. on P. O.	497
265	Conway	Rockcastle	L. & N. R. R.	951
266	Coolers Knob	Caldwell	U. S. B. M.	743
267	Copeland	Breathitt	L. & E. R. R.	795
268	Coral Ridge	Jefferson	U. S. B. M.	500
269	Coraville	Henderson	U. S. B. M.	412
270	Corbin	Whitley	L. & N. R. R.	1,046
271	Corinth	Grant	Q. & C. R. R.	363
272	Cornishville	Mercer	U. S. B. M.	736
273	Corydon	Henderson	U. S. B. M.	469
274	Covington	Kenton	C. & O. R. R.	522
275	Covington	Kenton	B. M. on P. O.	513
276	Cowan	Fleming	L. & N. R. R.	827
277	Crab Orchard	Lincoln	L. & N. R. R.	919
278	Craftsfield	Letcher	U. S. B. M.	1,234
279	Crayne	Crittenden	U. S. B. M. R. R. Station	643
280	Craynor	Floyd	U. S. B. M.	702
281	Crescent Hill	Jefferson	L. & N. R. R.	515
282	Crescent Springs	Kenton	Q. & C. R. R.	785
283	Crider	Caldwell	U. S. B. M. R. R. Station	487
284	Crittenden	Grant	Q. & C. R. R.	908
285	Crockettsville	Breathitt	U. S. B. M.	710
286	Crofton	Christian	U. S. B. M.	608
287	Cromwell	Ohio	U. S. B. M.	482
288	Cropper	Shelby	L. & N. R. R.	899
289	Crow-Hickman	Daviess	U. S. B. M.	404
290	Crum, W. Va.		N. & W. R. R.	617
291	Cullen	Union	U. S. B. M.	476
292	Cumberland Falls	McCreary	L. W. ½ mile above Falls	843
293	Cumberland Falls	Whitley	L. W. 300 yds. below Falls	789
294	Cumberland F. Sta.	Whitley	Q. & C. R. R.	1,266
295	Cumberland Gap	Tri-State Cor.		1,648
296	Cumberland Gap	Bell		1,665
297	Cumberland River	Wayne	Mill Spring Ford	538
298	Cumberland River	Pulaski	L. W. Burnside	569
299	Cumberland River	Pulaski	L. W. at mouth of Fishing Cr.	577
300	Cumberland River	Pulaski	L. W. at mouth of Rockcastle River	662
301	Cumberland River	Bell	L. W. at Pineville	951
302	Curdsville	Daviess	U. S. B. M.	393
303	Curlew	Union	U. S. B. M.	366
304	Curry	Mercer	L. S. R. R.	823
305	Cynthiana	Harrison	L. & N. R. R.	700
306	Cyrus, W. Va.		N. & W. R. R.	609
307	Dalton	Hopkins	U. S. B. M.	423

## ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
308	Daniel Boone	Hopkins	U. S. B. M.	494
309	Danville	Boyle	Q. & C. R. R.	955
310	Danville C. H.	Boyle	U. S. B. M.	989
311	Davenport	Butler	U. S. B. M.	481
312	Davidson	Ohio	I. C. R. R.	429
313	Dawson Springs	Hopkins	U. S. B. M.	436
314	Dayton	Campbell	C. & O. R. R.	543
315	Deane'sfield	Ohio	I. C. R. R.	490
316	Deep Cut	Carter-Lewis	C. & O. R. R.	1,036
317	Deerlick	Logan	U. S. B. M.	553
318	DeKoven	Union	U. S. B. M. R. R. Station	365
319	Delaware	Daviess	U. S. B. M.	397
320	Delorme, W. Va.		N. & W. R. R.	725
321	Dema	Knott	U. S. B. M.	711
322	Democrat	Letcher	U. S. B. M.	1,220
323	Dempster Junction	Breckinridge	L. H. & St. L. R. R.	408
324	Denton	Carter	U. S. B. M.	669
325	Denver	Johnson		639
326	Depoy	Muhlenberg	U. S. B. M.	500
327	Derby	Webster	U. S. B. M.	869
328	Dermont	Daviess	U. S. B. M.	478
329	Devon, W. Va.		N. & W. R. R.	761
330	Dexter	Calloway	N. C. & St. L. R. R.	424
331	Diamond Springs	Logan	U. S. B. M.	424
332	Dixie	Henderson	U. S. B. M.	457
333	Dixon	Boone	Q. & C. R. R.	928
334	Dixon	Webster	U. S. B. M. at C. H.	544
335	Donerail	Fayette	Q. & C. R. R.	883
336	Dongola	Letcher	U. S. B. M.	1,148
337	Dorton	Pike	U. S. B. M.	1,017
338	Dover	Mason	C. & O. R. R.	508
339	Drakesboro	Muhlenberg	U. S. B. M.	398
340	Dravo	Jefferson	L. S. R. R.	599
341	Drew	Knott	U. S. B. M.	1,296
342	Dry Ridge	Grant	Q. & C. R. R.	949
343	Dulaney	Caldwell	U. S. B. M.	547
344	Dumont	Breathitt	L. & E. R. R.	748
345	Dunbar	Butler	U. S. B. M.	467
346	Duncannon	Madison	L. & N. R. R.	939
347	Dundee	Powell	U. S. B. M. L. & E. Station	711
348	Dundee	Ohio	U. S. B. M.	424
349	Dunmor	Muhlenberg	U. S. B. M.	533
350	Duvall	Scott	U. S. B. M.	840
351	Dwale	Floyd	U. S. B. M.	649
352	Dwarf	Breathitt	U. S. B. M.	892
353	Dycusburg	Crittenden	U. S. B. M.	873
354	Eagle	Carroll	L. & N. R. R.	406
355	Earles	Muhlenberg	U. S. B. M.	512
356	Earlington	Hopkins	U. S. B. M.	422
357	East Bernstadt	Laurel	L. & N. R. R.	1,159
358	East Cairo	Ballard	I. C. R. R.	322
359	East Eagle	Owen	U. S. B. M.	956

## Elevation, Above Sea. of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
360	East Louisville.....	Jefferson.....	L. & N. R. R.....	460
361	East Point.....	Johnson.....	C. & O. R. R.....	627
362	East View.....	Hardin.....	I. C. R. R.....	761
363	Eastwood.....	Jefferson.....	U. S. B. M. L. & N. Station	652
364	Ebenezer.....	Mercer.....	U. S. B. M.....	821
365	Eddyville.....	Lyon.....	I. C. R. R.....	436
366	Edgar.....	Floyd.....	U. S. B. M.....	660
367	Edjouett.....	Perry.....	L. & E. R. R.....	884
368	Edwards.....	Logan.....	L. & N. R. R.....	532
369	Ekron.....	Meade.....	L. H. & St. L. R. R.....	627
370	Elba.....	McLean.....	U. S. B. M.....	497
371	Elic.....	Knott.....	U. S. B. M. near P. O.....	1,064
372	Elihu.....	Pulaski.....	Q. & C. R. R.....	840
373	Elizabethtown.....	Hardin.....	L. & N. R. R.....	683
374	Elkatawa.....	Breathitt.....	U. S. B. M. L. & E. Station..	746
375	Elk Chester.....	Fayette.....	U. S. B. M.....	841
376	Elkhorn.....	Franklin.....	U. S. B. M. R. R. Station.....	662
377	Elkhorn City.....	Pike.....	C. & O. R. R.....	790
378	Elkin.....	Clark.....	L. & N. R. R.....	773
379	Elkton.....	Todd.....	E. & G. R. R.....	602
380	Elliston.....	Grant.....	L. & N. R. R.....	555
381	Elm Lick.....	Ohio.....	I. C. R. R.....	456
382	Elmrock.....	Knott.....	U. S. B. M.....	1,051
383	Elmville.....	Franklin.....	U. S. B. M.....	720
384	Elmwood.....	Webster.....	U. S. B. M.....	595
385	Elva.....	Marshall.....	N. C. & St. L. R. R.....	360
386	Eminence.....	Henry.....	L. & N. R. R.....	922
387	Empire.....	Christian.....	U. S. B. M.....	518
388	English.....	Carroll.....	L. & N. R. R.....	466
389	Ennis.....	Muhlenberg.....	U. S. B. M.....	458
390	Enola Ferry.....	Butler.....	U. S. B. M.....	404
391	Enon.....	Caldwell.....	U. S. B. M.....	464
392	Enterprise.....	Carter.....	C. & O. R. R.....	831
393	Eolia.....	Letcher.....	U. S. B. M.....	1,685
394	Epley's.....	Logan.....	L. & N. R. R.....	661
395	Era.....	Christian.....	U. S. B. M.....	682
396	Erlanger.....	Kenton.....	Q. & C. R. R.....	505
397	Ermine.....	Letcher.....	U. S. B. M.....	1,181
398	Escondida.....	Bourbon.....	L. & N. R. R.....	907
399	Estill Furnace.....	Estill.....	Foundation .....	1,261
400	Eubank.....	Pulaski.....	Q. & C. R. R.....	1,172
401	Euclid.....	Greenup.....	U. S. B. M.....	668
402	Euterpe.....	Henderson.....	U. S. B. M.....	441
403	Ewing.....	Fleming.....	L. & N. R. R.....	903
404	Ewington.....	Montgomery.....	C. & O. R. R.....	992
405	Excelsior.....	Bell.....	U. S. B. M. at Coal Mines.....	1,133
406	Fairdale.....	Jefferson.....	U. S. B. M.....	474
407	Fairfield.....	Nelson.....	U. S. B. M.....	715
408	Fair Grounds.....	Jefferson.....	U. S. B. M.....	727
409	Faith.....	McLean.....	U. S. B. M.....	460
410	Falcon.....	Hancock.....	L. H. & St. L. R. R.....	364
411	Falls of Rough.....	Grayson.....	L. H. & St. L. R. R.....	423
412	Falmouth.....	Pendleton.....	L. & N. R. R.....	530

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
413	Fariston.....	Laurel.....	L. & N. R. R.....	1,116
414	Farmdale.....	Franklin.....	U. S. B. M.....	949
415	Farmers.....	Rowan.....	C. & O. R. R.....	668
416	Farmersville.....	Caldwell.....	U. S. B. M.....	580
417	Faulconer.....	Boyle.....	B. M. on natural rock.....	890
418	Faywood.....	Woodford.....	U. S. B. M.....	858
419	Fed.....	Floyd.....	U. S. B. M.....	837
420	Fenwick.....	Fayette.....	U. S. B. M. L. & E. Station.....	938
421	Ferndale.....	Bell.....	L. & N. R. R.....	1,175
422	Field.....	Shelby.....	U. S. B. M. R. R. Station.....	735
423	Fillmore.....	Ballard.....	I. C. R. R.....	322
424	Filson.....	Powell.....	U. S. B. M. L. & E. Station.....	667
425	Fincastle.....	Lee.....	U. S. B. M. L. & E. Station.....	711
426	Finchville.....	Shelby.....	L. & N. R. R.....	679
427	Fisherville.....	Jefferson.....	U. S. B. M.....	562
428	Flanagan.....	Clark.....	L. & N. R. R.....	850
429	Flat Gap.....	Johnson.....	U. S. B. M.....	821
430	Flat Lick.....	Knox.....	L. & N. R. R.....	996
431	Flat Rock.....	Caldwell.....	U. S. B. M.....	496
432	Flat Rock.....	McCreary.....	Q. & C. R. R.....	1,300
433	Florence.....	Boone.....	U. S. B. M.....	935
434	Florence.....	McCracken.....	I. C. R. R.....	356
435	Flournoy.....	Union.....	U. S. B. M.....	419
436	Floyds.....	Pulaski.....	Q. & C. R. R.....	1,136
437	Ford.....	Clark.....	L. & N. R. R.....	623
438	Ford Branch.....	Pike.....	U. S. B. M.....	692
439	Ford's Ferry.....	Crittenden.....	U. S. B. M.....	360
440	Fordsville.....	Ohio.....	I. C. R. R.....	476
441	Forkland.....	Boyle.....	U. S. B. M.....	807
442	Fort Estill.....	Madison.....	L. & N. R. R.....	1,081
443	Fort Estill Jct.....	Madison.....	L. & N. R. R.....	1,036
444	Fort Gay, W. Va.....	.....	N. & W. R. R.....	578
445	Fort Jefferson.....	Ballard.....	I. C. R. R.....	322
446	Fort Thomas.....	Campbell.....	U. S. B. M.....	852
447	Foster.....	Bracken.....	C. & O. R. R.....	499
448	Fox Creek.....	Anderson.....	U. S. B. M.....	857
449	Francis.....	Crittenden.....	U. S. B. M.....	550
450	Frankfort.....	Franklin.....	L. W. in Kentucky River.....	470
451	Frankfort.....	Franklin.....	U. S. B. M. on P. O.....	512
452	Franklin.....	Simpson.....	L. & N. R. R.....	691
453	Fredonia.....	Caldwell.....	U. S. B. M. R. R. Station.....	404
454	Fredonia.....	Caldwell.....	U. S. B. M.....	423
455	Friendship.....	Caldwell.....	U. S. B. M.....	525
456	Frost.....	Christian.....	C. & O. R. R.....	544
457	Fruit Hill.....	Christian.....	U. S. B. M.....	641
458	Fryer.....	Caldwell.....	U. S. B. M.....	374
459	Fuget.....	Johnson.....	U. S. B. M.....	715
460	Fullers.....	Lawrence.....	C. & O. R. R.....	570
461	Fulton.....	Fulton.....	U. S. B. M.....	357
462	Futrell.....	Trigg.....	I. C. R. R.....	394
463	Gainesville.....	Allen.....	U. S. B. M.....	546
464	Gaithers.....	Hardin.....	L. & N. R. R.....	644
465	Gallup.....	Lawrence.....	U. S. B. M.....	591

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
466	Gap in Knob.....	Bullitt.....	U. S. B. M.....	493
467	Garfield.....	Breckinridge.....	L. H. & St. L. R. R.....	780
468	Garnett.....	Harrison.....	L. & N. R. R.....	715
469	Garrison.....	Lewis.....	C. & O. R. R.....	528
470	Gates.....	Rowan.....	C. & O. R. R. ....	819
471	Geneva.....	Henderson.....	U. S. B. M.....	387
472	George's Creek.....	Lawrence.....	C. & O. R. R.....	590
473	Georgetown.....	Scott.....	U. S. B. M.....	866
474	Gest.....	Henry.....	U. S. B. M.....	509
475	Gethsemane.....	Nelson.....	L. & N. R. R.....	458
476	Gilberts Creek.....	Lincoln.....	U. S. B. M.....	855
477	Gilbertsville.....	Marshall.....	I. C. R. R.....	431
478	Gishton.....	Muhlenberg.....	U. S. B. M.....	560
479	Glade.....	Marshall.....	N. C. & St. L. R. R.....	392
480	Glasgow.....	Barren.....	G. R. R. ....	790
481	Glasgow Junction.....	Barren.....	L. & N. R. R.....	623
482	Glenarvon.....	Clark.....	L. & E. R. R.....	971
483	Glencairn.....	Powell.....	U. S. B. M. L. & E. Station.....	784
484	Glencoe.....	Gallatin.....	L. & N. R. R.....	542
485	Glendale.....	Hardin.....	L. & N. R. R.....	640
486	Glendeane.....	Breckinridge.....	L. H. & St. L. R. R.....	433
487	Glen Hayes, W. Va.....	.....	N. & W. R. R.....	593
488	Glenn.....	Lewis.....	C. & O. R. R.....	543
489	Golds.....	Webster.....	U. S. B. M.....	358
490	Gordon.....	Muhlenberg.....	I. C. R. R.....	429
491	Goshen.....	Oldham.....	U. S. B. M.....	699
492	Gracey.....	Christian.....	I. C. R. R.....	495
493	Graham Station.....	Muhlenberg.....	U. S. B. M.....	409
494	Grand Rivers.....	Livingston.....	I. C. R. R.....	437
495	Grant.....	Carter.....	C. & O. R. R.....	671
496	Gratz.....	Owen.....	U. S. B. M.....	484
497	Gravel Switch.....	Livingston.....	I. C. R. R.....	351
498	Gravel Switch.....	Marion.....	L. & N. R. R.....	896
499	Gray.....	Knox.....	L. & N. R. R. ....	1,096
500	Grays Branch.....	Greenup.....	C. & O. R. R.....	533
501	Grayson.....	Carter.....	U. S. B. M. C. H.....	685
502	Grayson Springs.....	Grayson.....	I. C. R. R.....	658
503	Green Castle.....	Warren.....	U. S. B. M.....	424
504	Greendale.....	Fayette.....	U. S. B. M.....	936
505	Green River.....	.....	Lock 1, top of wall.....	361
506	Green River.....	.....	Lock 2, top of wall.....	374
507	Green River.....	Edmonson.....	L. W. in Green river at Dennison's Ferry .....	398
508	Green River.....	.....	Lock 3, top of wall.....	390
509	Green River.....	Hart.....	L. W. in Green River.....	399
510	Green River.....	Hart.....	L. W. Cub Run Creek.....	402
511	Green River.....	Butler.....	Lock 4, top of wall.....	405
512	Green River.....	Hart.....	L. W. Blue Springs Creek.....	407
513	Green River.....	Butler-Warrar.....	Lock 5, top of wall.....	419
514	Green River.....	Edmonson.....	Lock 6, top of wall.....	431
515	Green River.....	Hart.....	L. W. at Rio.....	436
516	Green River.....	Green.....	L. W. mouth of Little Bar- ren River .....	453

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
517	Green River	Green	L. W. Greensburg	516
518	Green River	Green	L. W. Bluff Boone Station	531
519	Green River	Taylor	L. W. at Atchley's Mill	545
520	Green River	Taylor	L. W. Griffith's Spring	590
521	Green River	Adair	L. W. at Plum Point	634
522	Greensburg	Green	Court House	583
523	Greenup	Greenup	L. W. in Ohio River	478
524	Greenup	Greenup	Clerk's Office	540
525	Greenville	Muhlenberg	U. S. B. M. C. H.	538
526	Greenwood	McCreary	Q. & C. R. R.	1,208
527	Grisby	Breathitt		890
528	Grove	Center-Union	U. S. B. M.	387
529	Guffie	McLean	U. S. B. M.	454
530	Gulmore	Pike	U. S. B. M.	694
531	Gum Grove	Union	U. S. B. M.	398
532	Gum Sulphur	Rockcastle	L. & N. R. R.	573
533	Guston	Meade	L. H. & St. L. R. R.	671
534	Guthrie	Todd	L. & N. R. R.	517
535	Habit	Davless	U. S. B. M.	559
536	Haddix	Breathitt	L. & E. R. R.	751
537	Hadensville	Todd	L. & N. R. R.	534
538	Hadley	Warren	U. S. B. M.	659
539	Halifax	Allen		723
540	Hall's Gap	Lincoln	L. & N. R. R.	993
541	Hamby Station	Hopkins	U. S. B. M.	412
542	Hamilton	Ohio	I. C. R. R.	442
543	Hamlak	Pike	C. & O. R. R.	667
544	Hampton	Boyd	U. S. B. M.	551
545	Handshoe	Knott	U. S. B. M.	395
546	Handyville	Davless	U. S. B. M.	397
547	Hansbrough	Hardin	I. C. R. R.	576
548	Hanson	Hopkins	U. S. B. M.	433
549	Happy Hollow	Hopkins	U. S. B. M.	381
550	Harbison	Shelby	U. S. B. M. R. R. Station	792
551	Hardesty	Crittenden		339
552	Hardin	Marshall	N. C. & St. L. R. R.	424
553	Harding	Union	U. S. B. M. R. R. Station	374
554	Hardinsburg	Breckinridge	L. H. & St. L. R. R.	700
555	Hardinsville	Shelby	L. & N. R. R.	534
556	Hardy	Pike		744
557	Harlan	Harlan	U. S. B. M. C. H.	1,197
558	Harned	Breckinridge	L. H. & St. L. R. R.	720
559	Harold	Floyd	C. & O. R. R.	698
560	Harris	Madison	L. & N. R. R.	1,009
561	Harrodsburg	Mercer	U. S. B. M. C. H.	571
562	Harrodsburg Jct.	Mercer	Q. & C. R. R.	900
563	Harrod's Creek	Jefferson	Weather Bureau	410
564	Hartford	Ohio	U. S. B. M.	434
565	Hartley	Pike	U. S. B. M. L. W. in Beaver Creek	572
566	Harvieland	Franklin	U. S. B. M.	612
567	Hatton	Shelby	U. S. B. M. R. R. Station	708
568	Hawesville	Hancock	L. H. & St. L. R. R.	387

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
569	Hawesville.....	Hancock.....	B. M. on Court House.....	423
570	Hawkins.....	Christian.....	U. S. B. M. ....	709
571	Hayden.....	Lincoln.....	L. & N. R. R. ....	333
572	Haynesville.....	Ohio.....	U. S. B. M. ....	476
573	Hazard.....	Perry.....	U. S. B. M. ....	373
574	Hazel.....	Calloway.....	N. C. & St. L. R. R. ....	573
575	Hazle Patch.....	Laurel.....	L. & N. R. R. ....	343
576	Hearin.....	Webster.....	U. S. B. M. ....	463
577	Heath.....	McCracken.....	I. C. R. R. ....	423
578	Hebbardsville.....	Henderson.....	U. S. B. M. ....	421
579	Hebron.....	Boone.....	B. M. on Clove's Store.....	377
580	Hedges.....	Clark.....	C. & O. R. R. ....	376
581	Hedgeville.....	Boyle.....	U. S. B. M. ....	324
582	Heflin.....	Ohio.....	U. S. B. M. ....	400
583	Helena.....	Mason.....	L. & N. R. R. ....	369
584	Heilner.....	Pike.....	C. & O. R. R. ....	1,135
585	Hemp Ridge.....	Shelby.....	L. S. R. R. ....	731
586	Henderson.....	Henderson.....	L. W. in Ohio River.....	317
587	Henderson.....	Henderson.....	L. & N. R. R. ....	433
588	Henshaw.....	Union.....	U. S. B. M. R. R. Station.....	371
589	Herman.....	Union.....	U. S. B. M. ....	461
590	Herndon.....	Scott.....	S. R. R. ....	306
591	Hesler.....	Owen.....	U. S. B. M. ....	942
592	Hewlett, W. Va.....		N. & W. R. R. ....	570
593	Hewletts.....	Daviess.....	U. S. B. M. ....	423
594	Hickman.....	Fulton.....	L. W. in Mississippi River.....	257
595	Hickman.....	Fulton.....	N. C. & St. L. R. ....	306
596	Hickory Grove.....	Graves.....	I. C. R. R. ....	415
597	Higginsport.....	Bracken.....	L. W. in Ohio River.....	445
598	High Bridge.....	Jessamine.....	Q. & C. R. R. ....	763
599	High Grove.....	Nelson.....	U. S. B. M. ....	499
600	Highland.....	Union.....	I. C. R. R. ....	378
601	Hikes Point.....	Jefferson.....	U. S. B. M. ....	563
602	Hillenmeyer.....	Fayette.....	U. S. B. M. ....	909
603	Hindman.....	Knott.....	U. S. B. M. on C. H. ....	1,032
604	Hinton.....	Scott.....	Q. & C. R. R. ....	943
605	Hippo.....	Floyd.....	U. S. B. M. ....	733
606	Hitchins.....	Carter.....	C. & O. R. R. ....	613
607	Hitesville.....	Union.....		400
608	Holland.....	Allen.....		306
609	Hallibush.....	Knott.....	U. S. B. M. ....	373
610	Holt.....	Breckinridge.....	L. H. & St. L. R. R. ....	374
611	Hombre.....	Perry.....	L. & E. R. R. ....	926
612	Hoods.....	Crittenden.....	U. S. B. M. ....	444
613	Hopewell.....	Greenup.....	E. K. R. R. ....	557
614	Hopkinsville.....	Christian.....	L. & N. R. R. ....	541
615	Hopson.....	Caldwell.....	U. S. B. M. ....	544
616	Horse Branch.....	Ohio.....	I. C. R. R. ....	476
617	Horse Cave.....	Hart.....	L. & N. R. R. ....	303
618	Horton.....	Ohio.....	I. C. R. R. ....	427
619	Huber.....	Bullitt.....	L. & N. R. R. ....	463
620	Hunnewell.....	Greenup.....	E. K. R. R. ....	523
621	Huntsville.....	Butler.....	U. S. B. M. ....	420

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
622	Hyattsville.....	Garrard.....	U. S. B. M.....	1,035
623	Ilsley.....	Hopkins.....	I. C. R. R.....	412
624	Independence.....	Kenton.....	L. & N. R. R.....	752
625	Indian Fields.....	Clark.....	U. S. B. M. L. & E. Station	746
626	Inez.....	Martin.....	U. S. B. M.....	638
627	Iola.....	Marshall.....	N. C. & St. L. R. R.....	352
628	Irma.....	Crittenden.....		504
629	Irvine.....	Estill.....	L. W. in Kentucky River.....	571
630	Irvington.....	Breckinridge.....	L. H. & St. L. R. R.....	577
631	Island.....	McLean.....	U. S. B. M.....	417
632	Island Creek.....	Pike.....	C. & O. R. R. ....	686
633	Isom.....	Letcher.....	U. S. B. M.....	1,107
634	Ivan.....	Knott.....	U. S. B. M.....	1,315
635	Ivel.....	Floyd.....	C. & O. R. R.....	657
636	Ivyton.....	Magoffin.....		895
637	Jabez.....	Russell.....	U. S. B. M.....	1,051
638	Jackson.....	Breathitt.....	U. S. B. M. at C. H.....	790
639	Jamboree P. O.....	Pike.....	Peter Creek .....	943
640	Jeffersontown.....	Jefferson.....	U. S. B. M.....	711
641	Jellico.....	Whitley.....	L. & N. R. R.....	937
642	Jenkins.....	Letcher.....	U. S. B. M.....	1,527
643	Jericho.....	Henry.....	L. & N. R. R.....	880
644	Jessamine.....	Jessamine.....	Q. & C. R. R.....	886
645	Jetts.....	Franklin.....	U. S. B. M.....	791
646	Jewell.....	Pike.....		1,407
647	John.....	Pike.....	U. S. B. M.....	693
648	Johnson.....	Fleming.....	L. & N. R. R.....	898
649	Jolly.....	Breckinridge.....	L. H. & St. L. R. R.....	652
650	Jolly.....	Davless.....	U. S. B. M.....	545
651	Jordan.....	Fulton.....	M. & O. R. R.....	404
652	Joyes.....	Shelby.....	L. S. R. R.....	718
653	Junction City.....	Boyle.....	Q. & C. R. R.....	982
654	Kavanaugh.....	Boyd.....	U. S. B. M.....	581
655	Keller.....	Harrison.....	L. & N. R. R.....	715
656	Kelly.....	Christian.....	L. & N. R. R.....	681
657	Kelsey.....	Caldwell.....	U. S. B. M.....	403
658	Kennebec.....	Franklin.....	U. S. B. M. R. R. Station.....	507
659	Kenney.....	Scott.....	L. S. R. R.....	832
660	Kenova, W. Va.....		N. & W. R. R.....	589
661	Kenton Heights.....	Kenton.....	Q. & C. R. R.....	830
662	Kentucky River.....	Carroll.....	L. W. at Carrollton.....	413
663	Kentucky River.....	Carroll.....	L. W. at Pool 1.....	430
664	Kentucky River.....	Owen.....	L. W. at Pool 2.....	443
665	Kentucky River.....	Franklin.....	L. W. at Pool 3 .....	446
666	Kentucky River.....	Franklin.....	L. W. at Frankfort.....	470
667	Kentucky River.....	Anderson.....	L. W. at Tyrone.....	484
668	Kentucky River.....	Jessamine.....	L. W. at High Bridge.....	492
669	Kentucky River.....	Jessamine.....	L. W. at Hickman Bridge.....	503
670	Kentucky River.....	Fayette.....	L. W. at Clay's Ferry.....	533
671	Kentucky River.....	Clark.....	L. W. at Boonesboro.....	538
672	Kentucky River.....	Clark.....	L. W. at mouth of Red River	548
673	Kentucky River.....	Estill.....	L. W. at Irvine.....	571
674	Kentucky River.....	Lee.....	L. W. at Beattyville.....	618

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
675	Kermit, W. Va.		N. & W. R. R.	629
676	Kevil	Ballard	I. C. R. R.	439
677	Kewanee	Pike	U. S. B. M.	683
678	Keyser	Pike	U. S. B. M.	674
679	Kilgore	Carter	U. S. B. M.	634
680	Kings Mountain	Lincoln	Q. & C. R. R.	1,168
681	Kinkaid	Scott	Q. & C. R. R.	862
682	Kirk	Breckinridge	L. H. & St. L. R. R.	689
683	Kirkmansville	Todd	U. S. B. M.	476
684	Kirkwood	Mercer	U. S. B. M.	852
685	Kirkwood Springs	Hopkins	U. S. B. M.	440
686	Kise	Lawrence	C. & O. R. R.	595
687	Kiserton	Bourbon	L. & N. R. R.	798
688	Kite	Knott	U. S. B. M.	879
689	Knob Lick	Nelson	L. & N. R. R.	900
690	Knottsville	Daviess	U. S. B. M.	559
691	Kona	Letcher	L. & E. R. R.	1,257
692	Krypton	Perry	L. & E. R. R.	805
693	Kuttawa	Lyon	I. C. R. R.	436
694	Lackey	Floyd	U. S. B. M.	695
695	Lagrange	Oldham	L. & N. R. R.	841
696	Lair	Harrison	L. & N. R. R.	743
697	Laketon	Carlisle	M. & O. R. R.	315
698	Lancaster	Garrard	U. S. B. M.	1,032
699	Langford	Rockcastle	L. & N. R. R.	905
700	Langley	Floyd	U. S. B. M.	673
701	Latonla	Kenton	L. & N. R. R.	537
702	Lawrenceburg	Anderson	U. S. B. M. C. H.	788
703	Layman P. O.	Harlan	U. S. B. M.	1,116
704	Lebanon	Marion	L. & N. R. R.	754
705	Lebanon Church	Franklin	U. S. B. M.	889
706	Lebanon Junction	Bullitt	L. & N. R. R.	429
707	Leburn	Knott	U. S. B. M.	1,045
708	Leitchfield	Grayson	I. C. R. R.	635
709	L. & E. Junction	Clark	U. S. B. M. L & E. Station	929
710	L & E. Tunnel	Clark	L. & E. R. R.	1,006
711	Leon	Carter	C. & O. R. R.	598
712	Levias	Crittenden		474
713	Levingood	Pendleton	L. & N. R. R.	629
714	Lewis	Daviess	L. & N. R. R.	403
715	Lewisburg	Logan	U. S. B. M.	496
716	Lewisburg	Mason	L. & N. R. R.	466
717	Lewisport	Hancock	L. W. in Ohio River	333
718	Lewisport	Hancock	U. S. B. M.	393
719	Lexington	Fayette	U. S. B. M.	957
720	Licking River	Kenton	L. W. at Covington	432
721	Licking River	Kenton	L. W. at De Coursey	445
722	Licking River	Kenton	L. W. at Visalia	453
723	Licking River	Pendleton	L. W. at mouth of South Fork	512
724	Licking River	Pendleton	L. W. at mouth of North Fork	536
725	Licking River	Robertson	L. W. at Claysville	544
726	Licking River	Nicholas	L. W. at Lower Blue Lick	566
727	Licking River	Nicholas	L. W. at mouth of Big Fleming	577

# ELEVATIONS ABOVE SEA

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Elevation, 'Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
728	Licking River.....	Nicholas.....	L. W. at mouth of Upper Blue Lick .....	592
729	Licking River.....	Bath.....	L. W. at mouth of Flat Creek	597
730	Licking River.....	Bath.....	L. W. at mouth of Slate Creek	623
731	Licking River.....	Bath.....	L. W. at mouth of Salt Creek	644
732	Licking River.....	Bath.....	L. W. at mouth of Beaver.....	676
733	Licking River.....	Morgan.....	L. W. at mouth of Elk Fork..	733
734	Licking River.....	Morgan.....	L. W. at West Liberty.....	742
735	Licking River.....	Morgan.....	L. W. at mouth of White Oak	766
736	Licking River.....	Morgan.....	L. W. at mouth at Rockhouse	776
737	Licking River.....	Magoffin.....	L. W. at mouth of John- son's Fork .....	806
738	Licking River.....	Magoffin.....	L. W. at mouth of Middle Fk.	820
739	Licking River.....	Magoffin.....	L. W. at Salyersville.....	840
740	Lillian.....	Perry.....	U. S. B. M.....	792
741	Lily.....	Laurel.....	L. & N. R. R.....	1,072
742	Limeville.....	Greenup.....	C. & O. R. R.....	531
743	Lisman.....	Webster.....	U. S. B. M.....	410
744	Little Cypress.....	Marshall.....	I. C. R. R.....	352
745	Little Muddy.....	Butler.....	U. S. B. M.....	463
746	Livermore.....	McLean.....	U. S. B. M.....	401
747	Livia.....	McLean.....	L. & N. R. R.....	422
748	Livingston.....	Crittenden.....	U. S. B. M. R. R. Station...	370
749	Livingston.....	Rockcastle.....	L. & N. R. R.....	853
750	Lockport.....	Henry.....	U. S. B. M.....	450
751	Lockwood.....	Boyd.....	C. & O. R. R.....	546
752	Lodiburg.....	Breckinridge..	L. H. & St. L. R. R.....	485
753	Logan.....	Shelby.....	L. & N. R. R.....	613
754	Logansport.....	Butler.....	U. S. B. M.....	471
755	Lombard.....	Powell.....	U. S. B. M. L. & E. Station..	681
756	London.....	Laurel.....	L. & N. R. R.....	1,209
757	Long.....	Warren.....	U. S. B. M.....	618
758	Long Branch.....	Meade.....	L. H. & St. L. R. R.....	417
759	Long Fork.....	Pike.....	U. S. B. M.....	1,019
760	Long Grove.....	Hardin.....	I. C. R. R.....	606
761	Long Run.....	Jefferson.....	U. S. B. M. L. & N. Station..	630
762	Longview.....	Jefferson.....	U. S. B. M.....	445
763	Lookout.....	Pike.....	U. S. B. M.....	963
764	Loretto.....	Marion.....	L. & N. R. R.....	711
765	Lost Creek.....	Breathitt.....	U. S. B. M.....	751
766	Louisa.....	Lawrence.....	L. W. in Big Sandy River.....	526
767	Louisa.....	Lawrence.....	C. & O. R. R.....	587
768	Louisville.....	Jefferson.....	L. W. above Falls.....	386
769	Louisville.....	Jefferson.....	Weather Bureau .....	525
770	Lovell.....	Knox.....	L. & N. R. R.....	982
771	Lowell.....	Garrard.....	L. & N. R. R.....	799
772	Ludlow.....	Kenton.....	Q. & C. R. R.....	535
773	Luzon.....	Webster.....	U. S. B. M.....	455
774	Lyndon.....	Jefferson.....	U. S. B. M.....	561
775	Lynn Camp.....	Laurel.....	L. & N. R. R.....	1,045
776	Lyonia.....	Hancock.....	U. S. B. M.....	514
777	McBrayer.....	Anderson.....	U. S. B. M.....	832
778	McClain.....	Henderson.....	I. C. R. R.....	378

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion,
779	McDonald Ferry	Franklin	U. S. B. M.	508
780	McDowell	Floyd	U. S. B. M.	681
781	McGowan	Caldwell	U. S. B. M.	484
782	McGowan Ferry	Woodford	U. S. B. M.	686
783	McHenry	Ohio	U. S. B. M.	427
784	McKinley	McLean	U. S. B. M.	381
785	McKinley	Lincoln	Q. & C. R. R.	1,008
786	McLeod	Logan	L. & N. R. R.	619
787	McNary	Muhlenberg	I. C. R. R.	427
788	McNeal	Boyd	U. S. B. M.	603
789	Macedonia	Christian	U. S. B. M.	530
790	Madisonville	Hopkins	U. S. B. M.	470
791	Magan	Ohio	U. S. B. M.	617
792	Mahan	Whitley	L. & N. R. R.	899
793	Majestic	Pike		880
794	Major	Henderson	I. C. R. R.	378
795	Manchester	Lewis	L. W. in Ohio River	461
796	Manchester	Lewis	C. & O. R. R.	525
797	Manitou	Hopkins	U. S. B. M.	427
798	Mannington	Christian	U. S. B. M.	493
799	Marcellus	Garrard	U. S. B. M.	915
800	Maretburg	Rockcastle	L. & N. R. R.	1,145
801	Marion	Crittenden	U. S. B. M. R. R. Station	583
802	Marksbury	Garrard	U. S. B. M.	961
803	Marrowbone	Pike	C. & O. R. R.	719
804	Marvin	Lawrence	U. S. B. M.	604
805	Mason	Grant	Q. & C. R. R.	924
806	Masonville	Christian	T. C. R. R.	557
807	Massack	McCracken	U. S. B. M.	450
808	Mass	Perry	L. & E. R. R.	906
809	Matewan, W. Va.		N. & W. R. R.	699
810	Mattle	Knott	U. S. B. M.	1,384
811	Mattingly	Breckinridge	L. H. & St. L. R. R.	343
812	Maurice	Kenton	L. & N. R. R.	498
813	Mavity	Boyd	U. S. B. M.	612
814	Maxon	McCracken	I. C. R. R.	365
815	Maxwell	Ohio	U. S. B. M.	432
816	Mayde	Madison	L. & N. R. R.	986
817	Mayfield	Graves	I. C. R. R.	421
818	Mayking	Letcher	L. & E. R. R.	1,208
819	Mayo	Mercer	U. S. B. M.	906
820	Maysville	Mason	L. W. in Ohio River	448
821	Maysville	Mason	C. & O. R. R.	507
822	Maywood	Lincoln	L. & N. R. R.	1,015
823	Meads	Boyd	C. & O. R. R.	580
824	Meadow Lawn	Jefferson	U. S. B. M.	445
825	Means Tenna	Carter	C. & O. R. R.	770
826	Meek	Johnson	C. & O. R. R.	609
827	Melvin	Floyd	U. S. G. S.	883
828	Memphis Junction	Warren	L. & N. R. R.	582
829	Mentor	Campbell	C. & O. R. R.	500
830	Mercer	Muhlenberg	I. C. R. R.	471
831	Mexico	Crittenden	U. S. B. M. R. R. Station	494

## ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
832	Middlesboro	Bell	U. S. B. M. at R. R. Station	1,129
833	Middletown	Jefferson	U. S. B. M.	723
834	Midway	Woodford	U. S. B. M. on P. O.	820
835	Milledgeville	Lincoln	U. S. B. M.	1,035
836	Mill Springs	Wayne	U. S. B. M.	844
837	Millwood	Grayson	I. C. R. R.	806
838	Mississippi River	Fulton	L. W. at Hickman	266
839	Mississippi River	Hickman	L. W. at Columbus	270
840	Mississippi River	Ballard	L. W. at mouth of Ohio River	273
841	Mitchellsburg	Boyle	U. S. B. M.	1,006
842	Monica	Lee	U. S. B. M. L. & E. Station	663
843	Monterey	Owen	L. W. in Kentucky River	443
844	Monterey	Owen	U. S. B. M.	548
845	Monticello	Wayne	U. S. B. M. on C. H.	686
846	Montrose	Fayette	U. S. B. M. L. & E. Station	934
847	Moore	Anderson	L. S. R. H.	729
848	Mooresville	Washington	L. & N. R. R.	800
849	Moran's Summit	Madison	L. & N. R. R.	964
850	Morehead	Rowan	C. & O. R. R.	713
851	Moreland	Lincoln	U. S. B. M.	1,130
852	Morgan	Pendleton	L. & N. R. R.	610
853	Morganfield	Union	U. S. B. M. at C. H.	439
854	Morgantown	Butler	U. S. B. M.	573
855	Morton's Gap	Hopkins	U. S. B. M.	651
856	Mortonville P. O.	Woodford	U. S. B. M.	790
857	Moscow	Hickman	M. & O. R. R.	313
858	Moseleyville	Davless	U. S. B. M.	326
859	Motherhead Ford	Bullitt	U. S. B. M.	436
860	Mouthcard	Pike	U. S. B. M.	843
861	Mt. Guthrie	Rockcastle	L. & N. R. R.	1,131
862	Mt. Savage	Carter	U. S. B. M.	619
863	Mt. Sterling	Montgomery	C. & O. R. R.	934
864	Mt. Vernon	Rockcastle	L. & N. R. R.	1,113
865	Mt. Washington	Bullitt	U. S. B. M.	688
866	Muldraugh	Meade	I. C. R. R.	749
867	Muldraugh Hill	Hardin	L. & N. Tunnel	767
868	Muldraugh Hill	Marion	L. & N. R. R.	1,190
869	Mullins	Rockcastle	L. & N. R. R.	804
870	Mundys	Woodford	U. S. B. M.	508
871	Munfordville	Hart	Court House	671
872	Murray	Calloway	N. C. & St. L. R. R.	480
873	Music	Carter	U. S. B. M.	702
874	Myers	Nicholas	L. & N. R. R.	613
875	Myra	Pike	U. S. B. M.	977
876	Natural Bridge	Powell	U. S. B. M. L. & E. Station	763
877	Naugatuck, W. Va.		N. & W. R. R.	637
878	Nazareth	Nelson	L. & N. R. R.	693
879	Neal, W. Va.		N. & W. R. R.	569
880	Nealy	Knott	U. S. B. M.	1,129
881	Nebo	Hopkins	U. S. B. M.	408
882	Ned	Breathitt	U. S. B. M. at P. O.	306
883	Nelson	Muhlenberg	U. S. B. M.	430
884	Nelsonville	Nelson	L. & N. R. R.	484

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
885	Neon.....	Letcher.....	L. & E. R. R.....	1,274
886	Nevins.....	Anderson.....	L. S. R. R.....	770
887	New Haven.....	Nelson.....	L. & N. R. R.....	444
888	New Hope.....	Nelson.....	L. & N. R. R.....	488
889	Newman.....	Daviess.....	U. S. B. M.....	382
890	Newport.....	Campbell.....	C. & O. R. R.....	536
891	New Richmond.....	Campbell.....	C. & O. R. R.....	496
892	Niagara.....	Henderson.....		477
893	Nicholasville.....	Jessamine.....	B. M. in Court House.....	947
894	Nicholasville.....	Jessamine.....	U. S. B. M.....	993
895	Nippa.....	Johnson.....	U. S. G. S.....	622
896	Nopel.....	Breathitt.....	U. S. B. M.....	792
897	Nolan, W. Va.....		N. & W. R. R.....	651
898	Nolin.....	Hardin.....	L. & N. R. R.....	660
899	Nonesuch.....	Woodford.....	U. S. B. M.....	812
900	Normal.....	Boyd.....	C. & O. R. R.....	539
901	North Fork.....	Boyle.....	L. & N. R. R.....	934
902	North Siding.....	McLean.....	L. & N. R. R.....	394
903	Nortonville.....	Hopkins.....	U. S. B. M.....	408
904	Norwood.....	Pulaski.....	Q. & C. R. R.....	1,122
905	Nuckols.....	McLeah.....	U. S. B. M.....	400
906	Nunns.....	Crittenden.....	U. S. B. M. R. R. Station.....	375
907	Oaksdale.....	Breathitt.....	U. S. B. M. L. & E. Station.....	791
908	Oakland.....	Warren.....	L. & N. R. R.....	531
909	Oak Ridge.....	Daviess.....	I. C. R. R.....	458
910	Oaks.....	McCracken.....	N. C. & St. L. R. R.....	348
911	Oakton.....	Hickman.....	M. & O. R. R.....	321
912	O'Bannon.....	Jefferson.....	U. S. B. M.....	765
913	Ohio River.....		L. W. at mouth.....	272
914	Ohio River.....	McCracken.....	L. W. at Paducah.....	286
915	Ohio River.....		L. W. at Shawneetown.....	301
916	Ohio River.....	Union.....	L. W. at Raleigh.....	302
917	Ohio River.....	Union.....	L. W. at Uniontown.....	306
918	Ohio River.....		L. W. at Mt. Vernon.....	308
919	Ohio River.....	Henderson.....	L. W. at Henderson.....	317
920	Ohio River.....	Daviess.....	L. W. at Owensboro.....	328
921	Ohio River.....		L. W. at Rockport.....	330
922	Ohio River.....	Hancock.....	L. W. at Lewisport.....	333
923	Ohio River.....		L. W. at Troy.....	335
924	Ohio River.....	Breckinridge.....	L. W. at Cloverport.....	340
925	Ohio River.....	Meade.....	L. W. at Concordia.....	346
926	Ohio River.....	Meade.....	L. W. at Brandenburg.....	356
927	Ohio River.....	Jefferson.....	L. W. at Louisville.....	386
928	Ohio River.....	Jefferson.....	L. W. at Bethlehem.....	399
929	Ohio River.....		L. W. at Madison.....	401
930	Ohio River.....		L. W. at Vevay.....	408
931	Ohio River.....	Gallatin.....	L. W. at Warsaw.....	411
932	Ohio River.....	Carroll.....	L. W. at Carrollton.....	413
933	Ohio River.....		L. W. at Cincinnati.....	431
934	Ohio River.....	Bracken.....	L. W. at Augusta.....	444
935	Ohio River.....	Mason.....	L. W. at Maysville.....	448
936	Ohio River.....		L. W. at Manchester.....	451
937	Ohio River.....	Lewis.....	L. W. at Quincy.....	464

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
938	Ohio River.....	Greenup.....	L. W. at Greenup .....	478
939	Ohio River.....	Boyd.....	L. W. at Catlettsburg.....	498
940	Oil City .....	Barren.....	G. R. R. ....	610
941	Oil Springs.....	Johnson.....	U. S. B. M.....	892
942	Oil Valley.....	Wayne.....	U. S. B. M.....	966
943	O. & K. Junction....	Breathitt.....	U. S. B. M. L. & E. Station	737
944	Oklahoma.....	Daviess.....	U. S. B. M.....	440
945	Okolona.....	Jefferson.....	U. S. B. M.....	470
946	Olaton.....	Ohio.....	I. C. R. R.....	430
947	Old Deposit.....	Jefferson.....	L. & N. R. R.....	453
948	Oldtown.....	Greenup.....	U. S. B. M.....	559
949	Olive Hill.....	Carter.....	C. & O. R. R.....	752
950	Olmstead.....	Logan.....	L. & N. R. R.....	563
951	Olympia.....	Bath.....	C. & O. R. R.....	751
952	Oneonta.....	Campbell.....	C. & O. R. R.....	501
953	Ono.....	Russell.....	U. S. B. M.....	976
954	Onton.....	Webster.....	U. S. B. M.....	479
955	Ophir.....	Morgan.....	.....	756
956	Ore Knob.....	Pike.....	U. S. B. M.....	1,188
957	Orell.....	Jefferson.....	L. & N. R. R.....	412
958	Ortiz.....	Webster.....	U. S. B. M.....	528
959	Orville.....	Henry.....	U. S. B. M.....	589
960	Otter Cr. Sta.....	Hardin.....	I. C. R. R.....	664
961	Otter Pond.....	Caldwell.....	U. S. B. M.....	544
962	Ottusville.....	Franklin.....	U. S. B. M.....	529
963	Owensboro.....	Daviess.....	L. W. in Ohio River.....	328
964	Owensboro.....	Daviess.....	U. S. B. M. C. H.....	396
965	Pactolus.....	Carter.....	U. S. B. M.....	580
966	Paducah.....	McCracken.....	L. W. in Ohio River.....	286
967	Paducah.....	McCracken.....	I. C. R. R.....	341
968	Paint Lick.....	Garrard.....	L. & N. R. R.....	794
969	Paintsville.....	Johnson.....	C. & O. R. R.....	620
970	Palace P. O.....	Wayne.....	U. S. B. M.....	649
971	Pansy Creek.....	Harlan.....	U. S. B. M.....	1,328
972	Panther.....	Daviess.....	U. S. B. M.....	473
973	Panther Creek.....	Daviess.....	L. & N. R. R.....	377
974	Paradise.....	Muhlenberg.....	U. S. B. M.....	408
975	Paris.....	Bourbon.....	L. & N. R. R.....	826
976	Paris Junction.....	Bourbon.....	L. & N. R. R.....	863
977	Parksville.....	Boyle.....	L. & N. R. R. R.....	1,052
978	Partridge.....	Letcher.....	U. S. B. M.....	1,585
979	Pauline.....	Logan.....	U. S. B. M.....	571
980	Paynes Depot.....	Scott.....	U. S. B. M.....	847
981	Paynes Gap.....	Letcher.....	U. S. B. M.....	1,873
982	Peach Orchard.....	Lawrence.....	C. & O. R. R.....	500
983	Peaks.....	Scott.....	S. R. R.....	884
984	Pellville.....	Hancock.....	U. S. B. M.....	531
985	Pembroke.....	Christian.....	L. & N. R. R.....	562
986	Pendleton.....	Henry.....	L. & N. R. R.....	830
987	Penick.....	Marion.....	L. & N. R. R.....	930
988	Penny Station.....	Pike.....	U. S. B. M.....	783
989	Penrod.....	Muhlenberg.....	U. S. B. M.....	427
990	Perryville.....	Boyle.....	U. S. B. M.....	851

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
991	Petersburg.....	Christian.....	L. & N. R. R.....	400
992	Petersburg.....	Jefferson.....	U. S. B. M.....	497
993	Petrie.....	Hancock.....	L. H. & St. L. R. R.....	358
994	Petroleum.....	Allen.....		614
995	Pettit.....	Davless.....	U. S. B. M.....	389
996	Pewee Valley.....	Oldham.....	U. S. B. M.....	784
997	Phelps.....	Pike.....	U. S. B. M.....	831
998	Philips Store.....	Muhlenberg.....	U. S. B. M.....	400
999	Phillipsburg.....	Marion.....	L. & N. R. R.....	704
1000	Philpot.....	Davless.....	U. S. B. M.....	399
1001	Pierce.....	Breckinridge.....	L. H. & St. L. R. R.....	407
1002	Pierceton.....	Hopkins.....	T. C. R. R.....	594
1003	Pikeville.....	Pike.....	C. & O. R. R.....	680
1004	Pilgrim.....	Martin.....	U. S. B. M.....	617
1005	Pilot Oak.....	Graves.....	Weather Bureau.....	411
1006	Pinckard.....	Woodford.....	U. S. B. M.....	824
1007	Pine Grove.....	Clark.....	C. & O. R. R.....	960
1008	Pine Hill.....	Rockcastle.....	L. & N. R. R.....	966
1009	Pine Knot.....	McCreary.....	Q. & C. R. R.....	1,410
1010	Pineville.....	Bell.....	U. S. B. M.....	1,082
1011	Piney.....	Crittenden.....	U. S. B. M.....	409
1012	Pink.....	Jessamine.....	U. S. B. M.....	818
1013	Pinkard.....	Woodford.....	U. S. B. M.....	824
1014	Plisgah.....	Woodford.....	U. S. B. M.....	863
1015	Pittsburg.....	Laurel.....	L. & N. R. R.....	1,135
1016	Pleasant Hill.....	Mercer.....	U. S. B. M.....	932
1017	Pleasant Home.....	Owen.....	U. S. B. M.....	887
1018	Pleasant Valley.....	Rockcastle.....	L. & N. R. R.....	1,110
1019	Pleasant View.....	Whitley.....	L. & N. R. R.....	971
1020	Pleasure Ridge Pk.....	Jefferson.....	I. C. R. R.....	447
1021	Pleasureville.....	Henry.....	L. & N. R. R.....	882
1022	Poindexter.....	Harrison.....	L. & N. R. R.....	717
1023	Point Leavell.....	Garrard.....	L. & N. R. R.....	884
1024	Pond Creek.....	Pike.....	C. & O. R. R.....	742
1025	Poole.....	Webster.....	U. S. B. M.....	499
1026	Potter.....	Lawrence.....	C. & O. R. R.....	573
1027	Potters Gap.....	Letcher.....	U. S. B. M.....	1,688
1028	Pound Gap.....	Letcher.....	U. S. B. M.....	2,512
1029	Poverty.....	McLean.....	U. S. B. M.....	391
1030	Powers.....	Davless.....	L. H. & St. L. R. R.....	362
1031	Pratt.....	Webster.....	U. S. B. M.....	502
1032	Preachersville.....	Lincoln.....	U. S. B. M.....	998
1033	Preese.....	Martin.....		719
1034	Preston.....	Bath.....	C. & O. R. R.....	742
1035	Prestonia.....	Jefferson.....	U. S. B. M.....	511
1036	Prestonsburg.....	Floyd.....	L. W. in Big Sandy River.....	606
1037	Prestonsburg.....	Floyd.....	U. S. B. M. C. & O. Station.....	637
1038	Prewitt.....	Montgomery.....	C. & O. R. R.....	1,054
1039	Prichard, W. Va.....		N. & W. R. R.....	569
1040	Princess.....	Boyd.....	C. & O. R. R.....	632
1041	Princeton.....	Caldwell.....	U. S. B. M. R. R. Station.....	484
1042	Prospect.....	Jefferson.....	U. S. B. M.....	484
1043	Prosperity.....	Lawrence.....	U. S. B. M.....	632

## ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
1044	Providence	Webster	U. S. B. M.	453
1045	Pryors	Graves	I. C. R. R.	430
1046	Pryorsburg	Graves	I. C. R. R.	411
1047	Pulaski	Pulaski	Q. & C. R. R.	1,120
1048	Quality	Butler	U. S. B. M. at P. O.	508
1049	Quarry Switch	Bullitt	L. & N. R. R.	463
1050	Quicksand	Knott	U. S. B. M.	1,700
1051	Quincy	Lewis	L. W. in Ohio River	464
1052	Quincy	Lewis	C. & O. R. R.	543
1053	Quinn	Caldwell	U. S. B. M.	530
1054	Ralley	Woodford	S. R. R.	334
1055	Raleigh	Union	L. W. in Ohio River	302
1056	Ralph	Ohio	S. B. M.	430
1057	Rankin	Henderson	L. & N. R. R.	372
1058	Raven	Knott	U. S. B. M.	749
1059	Redbush	Johnson	U. S. B. M.	804
1060	Red Hill	Christian	U. S. B. M.	450
1061	Red Hill	Hardin	I. C. R. R.	751
1062	Red House	Madison	L. & N. R. R.	710
1063	Red Oak	Logan	L. & N. R. R.	565
1064	Red River	Logan	L. & N. R. R.	522
1065	Reed	Henderson	U. S. B. M.	379
1066	Renick	Marion	L. & N. R. R.	927
1067	Repton	Crittenden	U. S. B. M. R. R. Station	485
1068	Republican	Knott	U. S. B. M.	804
1069	Reynolds Station	Ohio	U. S. B. M.	497
1070	Ricedale	Muhlenberg	L. & N. R. R.	387
1071	Richardson	Lawrence	C. & O. R. R.	509
1072	Richardson	Lawrence	L. W. in Big Sandy	549
1073	Richardsville	Warren	U. S. B. M.	698
1074	Richland	Hopkins	U. S. B. M.	431
1075	Richlieu	Logan		530
1076	Richmond	Madison	L. & N. R. R.	928
1077	Rich Pond	Warren	L. & N. R. R.	564
1078	Richwood	Boone	Q. & C. R. R.	324
1079	Riley	Marion	L. & N. R. R.	914
1080	Rineyville	Hardin	I. C. R. R.	808
1081	Riverside	Clark	L. & N. R. R.	545
1082	Riverside	Jefferson	I. C. R. R.	445
1083	Riverside	Warren		553
1084	River Station	Johnson	U. S. B. M.	615
1085	Riverton	Greenup	C. & O. R. R.	534
1086	Roachville	Green	L. W. in Green River	544
1087	Robard	Henderson	U. S. B. M.	425
1088	Robinson	Harrison	L. & N. R. R.	674
1089	Rochester	Butler	U. S. B. M.	451
1090	Rockfield	Warren	L. & N. R. R.	568
1091	Rock Haven	Meade	L. H. & St. L. R. R.	412
1092	Rockhold	Whitley	L. & N. R. R.	965
1093	Rockhouse	Pike	C. & O. R. R.	380
1094	Rockland	Warren	U. S. B. M.	804
1095	Rockport	Ohio	U. S. B. M.	436
1096	Rock Springs	Henderson	U. S. B. M.	486

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
1097	Rock Vale.....	Breckinridge.....	L. H. & St. L. R. R.....	435
1098	Rocky Hill.....	Edmonson.....	L. & N. R. R.....	596
1099	Rockhouse.....	Pike.....	.....	858
1100	Rodener.....	Allen.....	.....	749
1101	Rogers Gap.....	Scott.....	Q. & C. R. R.....	913
1102	Roosevelt.....	Breathitt.....	.....	748
1103	Rosine.....	Ohio.....	U. S. B. M.....	564
1104	Ross.....	Campbell.....	C. & O. R. R.....	494
1105	Rosslyn.....	Powell.....	U. S. B. M. L. & E. Station.....	668
1106	Rothwell.....	Menifee.....	C. & O. R. R.....	993
1107	Rough River.....	Ohio.....	Lock 1. Top of wall.....	381
1108	Roumine.....	Taylor.....	Kentucky Geological Survey.....	784
1109	Rowland.....	Lincoln.....	L. & N. R. R.....	844
1110	Rowletts.....	Hart.....	L. & N. R. R.....	610
1111	Roxana.....	Letcher.....	L. & E. R. R.....	1,039
1112	Rufus.....	Caldwell.....	U. S. B. M.....	425
1113	Rugless.....	Lewis.....	C. & O. R. R.....	703
1114	Rumsey.....	McLean.....	.....	384
1115	Rush.....	Boyd.....	U. S. B. M.....	639
1116	Russell.....	Greenup.....	C. & O. R. R.....	549
1117	Russellville.....	Logan.....	L. & N. R. R.....	534
1118	Ruth.....	Breckinridge.....	L. H. & St. L. R. R.....	493
1119	Sacrament.....	McLean.....	U. S. B. M.....	497
1120	Sadleville.....	Scott.....	Q. & C. R. R.....	857
1121	Saffell.....	Franklin.....	U. S. B. M.....	890
1122	Saffells.....	Anderson.....	S. R. R.....	754
1123	Salmons.....	Simpson.....	L. & N. R. R.....	677
1124	Salt Lick.....	Bath.....	C. & O. R. R.....	656
1125	Saltpetre, W. Va.....	.....	N. & W. R. R.....	584
1126	Salvisa.....	Mercer.....	U. S. B. M.....	808
1127	Salyersville.....	Magoffin.....	L. W. in Licking River.....	840
1128	Sample.....	Breckinridge.....	L. H. & St. L. R. R.....	392
1129	Samuel Hill.....	Bullitt.....	U. S. B. M.....	838
1130	Samuels.....	Nelson.....	L. & N. R. R.....	652
1131	Sanders.....	Carroll.....	L. & N. R. R.....	488
1132	Sands, W. Va.....	.....	N. & W. R. R.....	737
1133	Savage Branch.....	Boyd.....	C. & O. R. R.....	547
1134	Saxton.....	Whitley.....	L. & N. R. R.....	966
1135	Sayers.....	Nelson.....	L. & N. R. R.....	674
1136	Science Hill.....	Pulaski.....	Q. & C. R. R.....	1,115
1137	Scott.....	Shelby.....	U. S. B. M. R. R. Station.....	744
1138	Scottsburg.....	Caldwell.....	U. S. B. M.....	521
1139	Scottsville.....	Allen.....	.....	762
1140	Scuffletown.....	Henderson.....	U. S. B. M.....	375
1141	Seatonsville.....	Jefferson.....	U. S. B. M.....	500
1142	Sebree.....	Webster.....	U. S. B. M.....	500
1143	Sergeant.....	Letcher.....	U. S. B. M.....	1,222
1144	Shady Grove.....	Crittenden.....	U. S. B. M.....	426
1145	Shannondale.....	Fayette.....	U. S. B. M.....	888
1146	Shawhan.....	Bourbon.....	L. & N. R. R.....	825
1147	Shearer.....	Madison.....	L. & N. R. R.....	615
1148	Shelby.....	Boyle.....	U. S. B. M.....	991
1149	Shelby.....	Pike.....	C. & O. R. R.....	705

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
1150	Shelby Gap.....	Pike.....	.....	1,431
1151	Shelby Junction.....	Jefferson.....	L. & N. R. R.....	696
1152	Shelbyville.....	Shelby.....	U. S. B. M. C. H.....	760
1153	Shepherdsville.....	Bullitt.....	U. S. B. M. C. H.....	446
1154	Sheridan.....	Crittenden.....	.....	529
1155	Sherman.....	Grant.....	Q. & C. R. R.....	924
1156	Shively.....	Jefferson.....	U. S. B. M.....	458
1157	Silver Creek Sta.....	Madison.....	L. & N. R. R.....	804
1158	Simpsonville.....	Shelby.....	U. S. B. M. R. R. Station...	796
1159	Sinks.....	Rockcastle.....	L. & N. R. R.....	906
1160	Skillman.....	Hancock.....	L. H. & St. L. R. R.....	387
1161	Skylight.....	Oldham.....	U. S. B. M.....	704
1162	Slaughtersville.....	Webster.....	U. S. B. M.....	403
1163	Sloans Valley.....	McCreary.....	Q. & C. R. R.....	912
1164	Smithfield.....	Henry.....	L. & N. R. R.....	875
1165	Smithland.....	Livingston.....	L. W. in Ohio River.....	286
1166	Smith Mills.....	Henderson.....	U. S. B. M.....	413
1167	Smith's Grove.....	Warren.....	L. & N. R. R.....	607
1168	Smyrna.....	Jefferson.....	U. S. B. M.....	632
1169	Snider.....	Spencer.....	L. & N. R. R.....	1,004
1170	Soldier.....	Carter.....	C. & O. R. R.....	950
1171	Somerset.....	Pulaski.....	B. M. on Cumberland Hotel..	879
1172	Sonora.....	Hardin.....	L. & N. R. R.....	699
1173	Sorgho.....	Daviess.....	U. S. B. M.....	389
1174	South Carrollton.....	Muhlenberg.....	U. S. B. M.....	456
1175	South Columbus.....	Hickman.....	M. & O. R. R.....	354
1176	South Covington.....	Kenton.....	L. & N. R. R.....	529
1177	South Elkhorn.....	Fayette.....	U. S. B. M.....	957
1178	South Fork.....	Lincoln.....	Weather Bureau .....	981
1179	South Hill.....	Butler.....	U. S. B. M.....	546
1180	South Louisville.....	Jefferson.....	L. & N. R. R.....	462
1181	South Park.....	Jefferson.....	U. S. B. M.....	478
1182	South Portsmouth.....	Greenup.....	C. & O. R. R.....	529
1183	South Ripley.....	Mason.....	C. & O. R. R.....	507
1184	South Union.....	Logan.....	L. & N. R. R.....	579
1185	Sparta.....	Gallatin.....	L. & N. R. R.....	497
1186	Specht.....	Pike.....	U. S. B. M.....	1,207
1187	Spencer.....	Montgomery.....	C. & O. R. R.....	783
1188	Spider.....	Knott.....	U. S. B. M.....	1,059
1189	Spottsville.....	Henderson.....	U. S. B. M.....	365
1190	Sprigg, W. Va.....	.....	N. & W. R. R.....	690
1191	Springdale.....	Jefferson.....	U. S. B. M.....	620
1192	Springdale.....	Mason.....	C. & O. R. R.....	509
1193	Springfield.....	Washington.....	L. & N. R. R.....	738
1194	Spring Lick.....	Grayson.....	I. C. R. R.....	387
1195	Spring Station.....	Woodford.....	U. S. B. M.....	816
1196	Spurlington.....	Taylor.....	L. & N. R. R.....	981
1197	St. Charles.....	Hopkins.....	U. S. B. M.....	427
1198	St. Helens.....	Lee.....	U. S. B. M. L. & E. Station...	674
1199	St. John.....	Hardin.....	Weather Bureau .....	760
1200	St. Joseph.....	Daviess.....	U. S. B. M.....	420
1201	St. Mary.....	Marion.....	L. & N. R. R.....	733
1202	St. Matthews.....	Jefferson.....	U. S. B. M.....	550

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
1203	St. Vincent.....	Union.....	I. C. R. R.....	413
1204	Stacey.....	Perry.....	.....	824
1205	Stambaugh.....	Johnson.....	U. S. G. S.....	649
1206	Stamping Ground.....	Scott.....	U. S. B. M. R. R. Station.....	799
1207	Stanford.....	Lincoln.....	U. S. B. M. C. H.....	912
1208	Stanhope.....	Webster.....	U. S. B. M.....	468
1209	Stanley.....	Davless.....	U. S. B. M.....	385
1210	Stanton.....	Powell.....	U. S. B. M. L. & E. Station.....	662
1211	State Line.....	Christian.....	L. & N. R. R.....	535
1212	State Line.....	Whitley.....	Q. & C. R. R.....	1,359
1213	Stedman.....	Franklin.....	U. S. B. M. R. R. Station.....	711
1214	Stephensburg.....	Hardin.....	I. C. R. R.....	611
1215	Stephensport.....	Breckinridge.....	L. W. in Ohio River.....	340
1216	Stephensport.....	Breckinridge.....	L. H. & St. L. R. R.....	390
1217	Stepstone.....	Montgomery.....	C. & O. R. R.....	777
1218	Steubenville.....	Wayne.....	.....	887
1219	Stine.....	Jefferson.....	L. S. R. R.....	484
1220	Stithton.....	Hardin.....	I. C. R. R.....	686
1221	Stone Coal.....	Knott.....	U. S. B. M.....	686
1222	Strawberry.....	Jefferson.....	L. & N. R. R.....	432
1223	Stroud.....	Muhlenberg.....	L. & N. R. R.....	380
1224	Strunk.....	McCreary.....	Q. & C. R. R.....	1,397
1225	Sturgis.....	Union.....	U. S. B. M. R. R. Station.....	375
1226	Sullivan.....	Union.....	U. S. B. M.....	395
1227	Sulphur.....	Henry.....	L. & N. R. R.....	683
1228	Sulphur Springs.....	Ohio.....	U. S. B. M.....	418
1229	Summit.....	Boyd.....	C. & O. R. R.....	664
1230	Summit.....	Mason.....	L. & N. R. R.....	905
1231	Summit.....	McCreary.....	Q. & C. R. R.....	1,263
1232	Sunnydale.....	Ohio.....	U. S. B. M.....	427
1233	Sutherland.....	Davless.....	U. S. B. M.....	400
1234	Sutton Knob.....	Whitley.....	U. S. B. M.....	1,515
1235	Swallowfield.....	Franklin.....	U. S. B. M.....	527
1236	Sweeney.....	Garrard.....	U. S. B. M.....	1,024
1237	Switzer.....	Franklin.....	U. S. B. M. R. R. Station.....	735
1238	Tackitt's Mill.....	Owen.....	U. S. B. M.....	641
1239	Taffy.....	Ohio.....	U. S. B. M.....	480
1240	Talbott.....	Bourbon.....	L. & N. R. R.....	808
1241	Tallega.....	Lee.....	U. S. B. M. L. & E. Station.....	689
1242	Talmage.....	Mercer.....	U. S. B. M.....	821
1243	Tannery.....	Lewis.....	C. & O. R. R.....	552
1244	Tateville.....	McCreary.....	Q. & C. R. R.....	877
1245	Taylor Mines.....	Ohio.....	U. S. B. M.....	500
1246	Taylorville.....	Spencer.....	U. S. B. M. on C. H.....	490
1247	Teresita P. O.....	Owen.....	U. S. B. M.....	687
1248	Terrapin.....	Mercer.....	U. S. B. M.....	876
1249	Thacker, W. Va.....	.....	N. & W. R. R.....	716
1250	The Forks.....	Pike.....	C. & O. R. R.....	710
1251	Thompson's.....	Montgomery.....	C. & O. R. R.....	1,037
1252	Thompson.....	Union.....	I. C. R. R.....	408
1253	Thompsonville.....	Christian.....	T. C. R. R.....	542
1254	Threlkel.....	Butler.....	U. S. B. M.....	430
1255	Thurman.....	Hickman.....	I. C. R. R.....	322

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva- tion.
1256	Tichenor.....	McLean.....	L. & N. R. R.....	383
1257	Tilden.....	Webster.....	U. S. B. M.....	425
1258	Tillie.....	Letcher.....	.....	1,266
1259	Tip Top.....	Hardin.....	I. C. R. R.....	760
1260	Tomahawk.....	Martin.....	U. S. G. S.....	656
1261	Topeka Crossroads.....	Union.....	U. S. B. M.....	430
1262	Torchlight.....	Lawrence.....	U. S. B. M.....	588
1263	Torrent.....	Wolfe.....	U. S. B. M. L. & E. Station...	939
1264	Tradewater.....	Hopkins.....	I. C. R. R.....	456
1265	Trammel.....	Allen.....	.....	761
1266	Trenton.....	Todd.....	L. & N. R. R.....	531
1267	Tribune.....	Crittenden.....	U. S. B. M.....	431
1268	Triplett Tunnel.....	Carter.....	C. & O. R. R.....	1,002
1269	Troublesome P. O..	Breathitt.....	.....	831
1270	Troy.....	Woodford.....	U. S. B. M.....	828
1271	Tucker.....	Jefferson.....	S. R. R.....	719
1272	Tunnel Hill.....	Henderson.....	U. S. B. M.....	443
1273	Tunnel Hill.....	Hardin.....	L. & N. R. R.....	767
1274	Turners.....	Henry.....	L. & N. R. R.....	740
1275	Twin Tunnels.....	Muhlenberg.....	U. S. B. M. L & N. Station..	501
1276	Typo.....	Perry.....	L. & E. R. R.....	840
1277	Tyrone.....	Anderson.....	L. W. in Kentucky River.....	483
1278	Tyrone.....	Anderson.....	U. S. B. M.....	738
1279	Ulván.....	Perry.....	L. & E. R. R.....	951
1280	Uma.....	Pendleton.....	L. & N. R. R.....	597
1281	Union Mills.....	Jessamine.....	U. S. B. M.....	939
1282	Uniontown.....	Union.....	L. W. in Ohio River.....	306
1283	Uniontown.....	Union.....	I. C. R. R.....	354
1284	Upland.....	McCreary.....	Q. & C. R. R.....	1,253
1285	Upper Bruce.....	Lewis.....	C. & O. R. R.....	553
1286	Upton.....	Hardin.....	L. & N. R. R.....	724
1287	Utica.....	Davless.....	U. S. B. M.....	417
1288	U. Z.....	Letcher.....	L. & E. R. R.....	1,083
1289	Vaden.....	Oldham.....	L. & N. R. R.....	850
1290	Valley Hill.....	Washington.....	L. & N. R. R.....	572
1291	Valley Station.....	Jefferson.....	U. S. B. M.....	452
1292	Vanarsdell.....	Mercer.....	U. S. B. M.....	788
1293	Vanceburg.....	Lewis.....	C. & O. R. R.....	523
1294	Vanderburg.....	Webster.....	U. S. B. M.....	580
1295	Van Lear.....	Johnson.....	U. S. G. S.....	612
1296	Van Meter.....	Fayette.....	L. S. R. R.....	880
1297	Veazey.....	Hopkins.....	U. S. B. M.....	564
1298	Veechdale.....	Shelby.....	L. S. R. R.....	742
1299	Venters.....	Pike.....	.....	775
1300	Verona.....	Boone.....	L. & N. R. R.....	862
1301	Versailles.....	Woodford.....	U. S. B. M.....	923
1302	Vest.....	Knott.....	U. S. B. M.....	1,044
1303	View.....	Crittenden.....	.....	441
1304	Vine Grove.....	Hardin.....	I. C. R. R.....	721
1305	Viola.....	Graves.....	I. C. R. R.....	400
1306	Virden.....	Powell.....	U. S. B. M. L. & E. Station..	660
1307	Virgie.....	Pike.....	U. S. B. M.....	837
1308	Visalia.....	Kenton.....	L. W. in Licking River.....	453

## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Elevation.
1309	Waddy.....	Shelby.....	S. R. R.....	854
1310	Wagon Ford.....	Crittenden.....	U. S. B. M.....	353
1311	Waitman.....	Hancock.....	L. H. & St. L. R. R.....	344
1312	Walbridge.....	Lawrence.....	U. S. B. M.....	588
1313	Wallace.....	Woodford.....	L. S. R. R.....	814
1314	Walnut.....	Knott.....	U. S. B. M.....	2,004
1315	Walnut Grove.....	Caldwell.....	U. S. B. M.....	449
1316	Walnut Hill School.....	Caldwell.....	U. S. B. M.....	588
1317	Walton.....	Boone.....	Q. & C. R. R.....	912
1318	Wanamaker.....	Webster.....	U. S. B. M.....	445
1319	Ward.....	Pike.....		703
1320	Wards.....	Carter.....	C. & O. R. R.....	669
1321	Warfield.....	Martin.....	L. W. in Big Sandy.....	587
1322	Warsaw.....	Gallatin.....	L. W. in Ohio River.....	411
1323	Wasloto.....	Bell.....	U. S. B. M. L. & E. Station.....	1,025
1324	Waterford.....	Spencer.....	U. S. B. M.....	468
1325	Water Valley.....	Graves.....	I. C. R. R.....	386
1326	Water Works.....	Campbell.....	C. & O. R. R.....	498
1327	Waverly.....	Union.....	I. C. R. R.....	408
1328	Wayland.....	Floyd.....	U. S. G. S.....	702
1329	Waynesburg.....	Lincoln.....	Q. & C. R. R.....	1,215
1330	Weaverton.....	Henderson.....	I. C. R. R.....	380
1331	Webb, W. Va.....		N. & W. R. R.....	601
1332	Webbville.....	Lawrence.....	U. S. B. M.....	648
1333	Webster.....	Breckinridge.....	L. H. & St. L. R. R.....	542
1334	Weir.....	Muhlenberg.....	U. S. B. M.....	629
1335	Welborn.....	Muhlenberg.....	L. & N. R. R.....	486
1336	Wellsburg.....	Bracken.....	C. & O. R. R.....	501
1337	West Clifty.....	Grayson.....	I. C. R. R.....	631
1338	Westerfield.....	Ohio.....	U. S. B. M.....	464
1339	West Liberty.....	Morgan.....	L. W. in Licking River.....	742
1340	Weston.....	Crittenden.....		353
1341	West Louisville.....	Daviess.....	U. S. B. M.....	462
1342	West Point.....	Hardin.....	U. S. B. M.....	441
1343	Westport.....	Oldham.....	U. S. B. M.....	487
1344	Wetwoods.....	Jefferson.....	U. S. B. M.....	473
1345	Whalen P. O.....	Daviess.....	U. S. B. M.....	432
1346	Wheatcroft.....	Webster.....	U. S. B. M.....	376
1347	Whick.....	Breathitt.....	L. & E. R. R.....	776
1348	Whippoorwill.....	Logan.....	L. & N. R. R.....	539
1349	Whitefield.....	Bullitt.....	U. S. B. M.....	729
1350	White House.....	Johnson.....	C. & O. R. R.....	605
1351	White Oak.....	Pulaski.....	Q. & C. R. R.....	956
1352	White Plains.....	Hopkins.....	I. C. R. R.....	430
1353	White's Station.....	Madison.....	L. & N. R. R.....	907
1354	Whitesburg.....	Letcher.....	L. & E. R. R.....	1,146
1355	White Sulphur.....	Caldwell.....	U. S. B. M. R. R. Station.....	501
1356	White Sulphur.....	Scott.....	U. S. B. M.....	873
1357	Whitesville.....	Daviess.....	U. S. B. M.....	506
1358	Whitewood.....	Green.....	L. & N. R. R.....	570
1359	Whitley.....	McCreary.....	Q. & C. R. R.....	1,332
1360	Whitney.....	Scott.....	Q. & C. R. R.....	857
1361	Wiborg.....	McCreary.....	Q. & C. R. R.....	1,280

# ELEVATIONS ABOVE SEA

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## Elevation, Above Sea, of Points in Kentucky—Continued.

No.	Place	County	Station	Eleva-
1362	Wickliffe.....	Ballard.....	I. C. R. R. ....	322
1363	Wilbur.....	Lawrence.....	.....	705
1364	Wildie.....	Rockcastle.....	L. & N. R. R. ....	923
1365	Wilders.....	Campbell.....	L. & N. R. R. ....	492
1366	Wildwood.....	Allen.....	.....	764
1367	Willard.....	Pike.....	U. S. G. S. ....	677
1368	Willard.....	Carter.....	U. S. B. M. ....	625
1369	Williamsburg.....	Whitley.....	L. & N. R. R. ....	939
1370	Williamson, W. Va.	.....	N. & W. R. R. ....	665
1371	Williamstown.....	Grant.....	Q. C. R. R. ....	943
1372	Wilmore.....	Jessamine.....	U. S. B. M. ....	332
1373	Wilson.....	Henderson.....	I. C. R. R. ....	377
1374	Wilson Bridge.....	Hopkins.....	U. S. B. M. ....	372
1375	Wilsonville.....	Spencer.....	U. S. B. M. ....	643
1376	Winchester.....	Clark.....	U. S. B. M. L. & E. Station...	981
1377	Windom.....	Jessamine.....	Q. & C. R. R. ....	1,032
1378	Wingo.....	Graves.....	I. C. R. R. ....	466
1379	Wolf Lick.....	Logan.....	L. & N. R. R. ....	401
1380	Woodbine.....	Whitley.....	L. & N. R. R. ....	1,080
1381	Woodburn.....	Warren.....	L. & N. R. R. ....	610
1382	Woodbury.....	Butler.....	.....	412
1383	Woodland.....	Hart.....	L. & N. R. R. ....	623
1384	Woodlawn.....	Jefferson.....	L. & N. R. R. ....	509
1385	Woodman.....	Pike.....	U. S. B. M. ....	790
1386	Woods.....	Floyd.....	U. S. B. M. ....	643
1387	Woodville.....	Christian.....	I. C. R. R. ....	512
1388	Worthington.....	Henderson.....	L. H. & St. L. R. R. ....	382
1389	Worthington.....	Jefferson.....	U. S. B. M. ....	695
1390	Worthville.....	Carroll.....	L. & N. R. R. ....	478
1391	Wrights.....	Taylor.....	L. & N. R. R. ....	616
1392	Wurtland.....	Greenup.....	C. & O. R. R. ....	539
1393	Wyandotte.....	Clark.....	U. S. B. M. L. & E. Station	990
1394	Wyman.....	McLean.....	U. S. B. M. ....	484
1395	Wynn Bridge.....	Union.....	U. S. B. M. ....	364
1396	Wysox.....	Ohio.....	U. S. B. M. ....	401
1397	Yatesville.....	Lawrence.....	U. S. B. M. ....	582
1398	Yeager.....	Pike.....	C. & O. R. R. ....	730
1399	Yerkes.....	Perry.....	L. & E. R. R. ....	823
1400	Youngs H. Bridge..	Anderson.....	S. R. R. ....	706
1401	Zelda P. O.....	Lawrence.....	U. S. B. M. ....	567
1402	Zion.....	Henderson.....	U. S. B. M. ....	436
1403	Zoneton.....	Bullitt.....	U. S. B. M. ....	486

## CHAPTER XI.

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## **APPENDIX.**

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### **PART I.**

#### **STATUTE REGULATING CONTROL OF PETROLEUM, NATURAL GAS AND SALT-WATER WELLS.**

(Chap. 100, Act of May 14, 1892.)

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§ 3910. Person not using well must close it so as to prevent waste. That from and after the passage of this act, any person or corporation, and each and every one of them, in possession, whether as owner, lessee, agent or manager, of any well in which petroleum, natural gas or salt-water has been found, shall, unless said product is sooner utilized, within a reasonable time, not, however, exceeding three months from the completion of said well, in order to prevent said product wasting by escape, shut in and confine the same in said well until such time as it shall be utilized; Provided, however, That this section shall not apply to gas escaping from any well while it is being operated as an oil well or while it is used for fresh or mineral water.

§ 3911. How abandoned wells are to be closed. That whenever any well shall have been put down for the purpose of drilling, or exploring for oil, gas, or salt water, upon abandoning or ceasing to operate the same, the person or corporation in possession as aforesaid shall, for the purpose of excluding all fresh water from the gas-bearing rock, and before drawing the casing, fill up the well with sand or rock sediment to a depth of at least twenty feet above the rock which holds the oil, gas or salt water, and drive a round, seasoned wooden plug, at least three feet in length, equal in diameter to the diameter of the well below the casing, to a point at least five feet below the bottom of the casing; and immediately after drawing the casing, shall drive a round, seasoned wooden plug at a point just below where the lower end of the casing rests, which plug shall be at least three feet in length,

tapering in form, and of the same diameter, at the distance of eighteen inches from the smaller end, as the diameter of the hole below the point at which it is to be driven. After the plug has been properly driven, there shall be filled on top of the same, sand or rock sediment to the depth of at least five feet.

§ 3912. Penalty for violation of provision of this law. Any person or corporation who shall violate any of the provisions of sections 3910 or 3911, shall be liable to a penalty of one hundred dollars for each and every violation thereof, and to the further penalty of one hundred dollars for each thirty days during which said violation shall continue; and all such penalties shall be recovered, with cost of suit, in a civil action or actions in the name of the State, for the use of the county in which the well shall be located. (See salt and saltpetre works, sec. 4359.)

§ 3913. Who, besides owner, may close abandoned well. Whenever any person or corporation in possession of any well in which oil, gas or salt water has been found, shall fail to comply with the provisions of section 3910, any person or corporation lawfully in possession of lands situate adjacent to or in the neighborhood of said well, may enter upon the lands upon which said well is situated, and take possession of said well from which oil, gas or salt water is allowed to escape or waste in violation of said section 3910, and tube and pack said well, and shut in said oil, gas or salt water, and may maintain a civil action in any court of this State against the owner, lessee, agent or manager of said well, and each and every one of them, jointly and severally, to recover the cost thereof. This shall be in addition to the penalties provided by section 3912.

§ 3914. Person, not owner, closing well may recover costs of owner. Whenever any person or corporation shall abandon any well, and shall fail to comply with section 3911, any person or corporation lawfully in possession of lands adjacent to or in the neighborhood of said well, may enter upon the land upon which said well is situated, and take possession of said well, and plug the same in the manner provided by section 3911, and may maintain a civil action in any court of this State against the owner or person abandoning said well, and every one of them, jointly and severally, to recover the cost thereof.

This shall be in addition to the penalties provided by section 3912: Provided, This section shall not apply to persons owning the lands on which said well or wells are situated and drilled by other parties; and in case the person or corporation drilling said well or wells is insolvent, then, in that event, any person or corporation in possession of lands adjacent to or in the neighborhood of said well or wells, may enter upon the land upon which said well or wells are situated, and take possession of said well or wells, and plug the same in the manner provided for in section 3911, at their own expense.

§ 3914a. Abandoned oil or gas well must be closed—penalty. It shall be unlawful for any person or persons, corporations or companies to abandon any oil or gas wells, either dry or producing, in this Commonwealth, or to remove casings therefrom whether same be either oil or gas, either producing or dry, or for any cause abandon said well or wells without first plugging same in a secure manner by placing a plug of pine, poplar or some other material which will prevent said well from becoming flooded, said plug to be placed above the oil-producing sand or sands, and filled in above for the distance of seven feet with sediment or clay and placing upon same another plug of similar material as that of the first and also placing about ten feet below the said casing another plug of like material as above referred to, seven feet of sediment or clay, and then another plug, all plugs to be securely driven in so that no water can pass the same, before the casing is removed.

Any person or persons, corporations or companies refusing or failing to comply with the foregoing provisions as provided for in section 1 herein, shall, on conviction, be fined in any one sum not less than one hundred dollars, or not more than one thousand dollars, in the discretion of the jury.

All acts or parts of acts in conflict herewith are hereby repealed.

## PART II.

Kentucky Form.

## OIL AND GAS LEASE.

AGREEMENT, Made and entered into the.....  
day of .....191..... by and between

.....Party of  
the First Part, hereinafter called Lessor (whether one or  
more) and .....  
Party of the Second Part, Lessee:

WITNESSETH, That the said Lessor, for and in consid-  
eration of .....  
Dollars, cash in hand paid, receipt of which is hereby ac-  
knowledged, and of the covenants and agreements herein-  
after contained on the part of Lessee, to be paid, kept and  
performed, has granted, demised, leased and let, and by  
these presents does grant, demise lease and let unto the  
said Lessee, for the sole and only purpose of mining and  
operating for oil and gas, and laying pipe lines, and build-  
ing tanks, powers, stations and structures thereon to pro-  
duce, save and take care of said products, all that certain  
tract of land situate in the County of.....  
State of Kentucky, on the waters of.....  
bounded and described as follows:

On the North by the lands of.....

On the East by the lands of.....

On the South by the lands of.....

On the West by the lands of.....

containing ..... acres, more or  
less, and hereby releasing and waiving all right under and  
by virtue of the Homestead Exemption Laws of this State  
in and to said land.

It is agreed that this lease shall remain in force for a  
term of five years from date, and as long thereafter as oil  
or gas, or either of them, is produced from said land by  
the Lessee.

In consideration of the premises the said Lessee cov-  
enants and agrees:

1st. To deliver to the credit of Lessor, free of cost,  
into tanks or in the pipe line to which he may connect his  
wells, the equal one-eighth part of all oil produced and  
saved from the leased premises.

2nd. To pay the Lessor Two Hundred Dollars each year, payable quarterly in advance, for the gas from each well where gas only is found, while the same is being used off the premises, and Lessor to have gas free of cost from any such well for all stoves and all inside lights in the principal dwelling house on said land during the same time by making his own connections with the wells at his own risk and expense.

3rd. To pay Lessor for gas produced from any oil well and used off the premises at the rate of Ten Dollars per year, for the time during which such gas shall be used, said payments to be made each three month in advance.

4th. If the Lessee shall operate any such well for casing-head gasoline, then the Lessor shall receive as royalty thereon one-eighth (1-8) part of the market value in the field of the casing-head gasoline so saved, in addition to the royalty to which he may be entitled from the oil produced from any such well.

If no well be commenced on said land on or before the \_\_\_\_\_ day of \_\_\_\_\_ 191..... this lease shall terminate as to both parties, unless the Lessee, on or before that date, shall pay or tender to \_\_\_\_\_ in the manner hereinafter provided, the sum of \_\_\_\_\_ DOLLARS, which shall operate as a rental and cover the privilege of deferring the commencement of a well for \_\_\_\_\_ months from said date. In like manner, and upon like payments or tenders, the commencement of a well may be further deferred for like period of the same number of months successively. And it is understood and agreed that the consideration first recited herein, the down payment, covers not only the privileges granted to the date when the said first rental is payable as aforesaid, but also the Lessee's option of extending that period as aforesaid, and any and all other rights conferred.

All rentals or money due hereunder shall be paid by Lessee's check, mailed, postage prepaid, to \_\_\_\_\_ at \_\_\_\_\_ or to \_\_\_\_\_ Bank of \_\_\_\_\_ for the credit of \_\_\_\_\_ on or before the date any such rental shall become payable; said Bank, by a power irrevocable, is hereby made the agent of Lessor to accept all rentals paid hereunder, and the same shall continue as the depository of such

rentals during the life of this lease, regardless of changes in the ownership of said land or said rental.

If said lessor owns a less interest in the above described land than the entire and undivided fee simple estate therein, then the royalties and rentals herein provided shall be paid the lessor only in the proportion which his interest bears to the whole and undivided fee.

Lessee shall have the right to use, free of cost, gas, oil and water produced on said land for its operation thereon, except water from wells of lessor.

When requested by lessor, lessee shall bury its pipe lines below plow depth in cultivated portions of land.

No well shall be drilled nearer than 200 feet of the house or barn now on said premises, without written consent of the lessor.

Lessee shall pay damages caused by its operations to growing crops on said land.

Lessee shall have the right at any time to remove all machinery and fixtures placed on said premises, including the right to draw and remove casing.

If the estate of either party hereto is assigned, and the privilege of assigning in whole or in part is expressly allowed—the covenants hereof shall extend to their heirs, executors, administrators, successors or assigns, but no change in the ownership of the land or assignment of rentals or royalties shall be binding on the lessee until after the lessee has been furnished with a written transfer or assignment or a true copy thereof; and it is hereby agreed in the event this lease shall be assigned as to a part or as to parts of the above described lands and the assignee or assignees of such part or parts shall fail or make default in the payment of the proportionate part of the rents due from him or them, such default shall not operate to defeat or affect this lease in so far as it covers a part or parts of said lands upon which the said lessee or any assignee thereof shall make due payment of said rental.

Lessor hereby warrants and agrees to defend the title to the lands herein described, and agrees that the lessee shall have the right at any time to redeem for lessor, by payment, any mortgages, taxes or any other liens on the above described lands, in the event of default

of payment by lessor, and be subrogated to the rights of the holder thereof.

In witness whereof, the parties have set their hands and seals this the day and year first above written.

WITNESS  
.....  
.....  
.....  
.....

(ACKNOWLEDGMENT TO THE LEASE)

STATE OF KENTUCKY, } ss.  
County of.....

I,.....County Clerk,  
.....Notary Public, in and for said  
County and State, do certify that this instrument of writ-  
ing from.....and wife.....  
was this day produced to me in my county by the parties  
and acknowledged by said.....and  
....., his wife, to be their act and  
deed respectively.

Given under my hand and seal of office, this .....  
day of.....191.....

.....County Clerk.  
.....Notary Public.  
By .....Deputy Clerk.  
My commission expires.....day of.....191.....

ASSIGNMENT.

KNOW ALL MEN BY THESE PRESENTS:

That .....of .....  
State of .....the within named grant ....  
in consideration of the sum of.....  
Dollars to.....in hand paid, the receipt whereof is  
hereby acknowledged, do.....hereby sell, assign, trans-  
fer, set over and convey unto.....heirs,  
and assigns, the within grant, TO HAVE AND TO  
HOLD THE SAME FOREVER, subject nevertheless, to  
the conditions therein contained.

IN WITNESS WHEREOF The said grant.....ha.....here-  
unto set.....hand.....this.....day of.....  
191.....

## ACKNOWLEDGMENT TO THE ASSIGNMENT.

I,.....Notary Public, in and for said County and State, do certify that this instrument of writing from.....and wife..... was this day produced to me in my county by the parties and acknowledged by said..... and ....., his wife, to be their act and deed respectively.

Given under my hand and seal of office, this ..... day of..... 191.....

.....Notary Public.  
My commission expires.....day of..... 191.....

(Author's Note—This is one of the most widely used lease forms in Kentucky).

## PART III.

Kentucky Form.

## OIL AND GAS DEED.

THIS AGREEMENT AND CONTRACT entered into between County of.....State of.....the grantors, party of the first part and.....heirs and assigns party of the second part, the grantee.

WITNESSETH, That the party of the first part in consideration of.....dollars paid by the party of the second part, the receipt of payment of which is acknowledged, do.....hereby grant and convey unto the party of the second part, his heirs and assigns forever the .....part of all the oil and gas in and underlying or produced from the following described piece or parcel of land together with the right and privilege of the land for oil and gas and asphalt, which land is situated in .....County of.....State of.....  
Bounded and described as follows:

On the North by the lands of now or formerly

On the East by the lands of now or formerly

On the South by the lands of now or formerly

On the West by the lands of now or formerly

Containing.....acres, more or less, subject to any valid lease for oil and gas now on the land while the same remain in force, but hereby granting and conveying the .....part of all oil and gas royalty and rents reserved in and under said land, with covenants of General

Warranty, and to execute such other and further assurances of title as counsel may desire, without expense to the party of the first part.

Dated the.....day of.....191.....  
Witness the following signature and seals:

.....  
.....  
.....Seal

NOTARY'S CERTIFICATE.

STATE OF KENTUCKY, }  
County of.....} ss.

I,....., a Notary Public, in and for said County, in the State aforesaid, do hereby certify that ..... personally known to me to be the same person.... whose name..... subscribed to the foregoing instrument, appeared before me this day in person, and in said County, and acknowledged that .....he..... signed, sealed, and delivered the instrument as.....free and voluntary act, for uses and purposes therein set forth, including the release and waiver of right of homestead, dower and other rights.

Given under my hand this.....day of.....191.....  
.....Clerk.....County Court  
By .....Deputy Clerk

RECORDATION.

STATE OF KENTUCKY, }  
County of.....} ss.

I,....., Clerk of the County Court within and for.....County, Kentucky, certify that the foregoing instrument of writing from..... to.....was produced to me in my office and State tax paid thereon, the.....day of.....1917, whereupon the same with this and the foregoing certificates were duly admitted to record in my office.

Given under my hand this.....day of.....191.....  
.....Clerk.....County Court  
By .....Deputy Clerk

## ASSIGNMENT.

For Full and Valuable Consideration, the receipt of which is hereby acknowledged,.....does hereby assign and transfer to.....this grant.

Witness my signature, this.....day of.....191.....

STATE OF KENTUCKY, }  
County of.....} ss.

Before me the undersigned authority within and for above named County and State, personally appeared .....who acknowledged that he did sign the above assignment and transfer for the uses and purposes therein contained.

IN WITNESS WHEREOF, I have hereunto affixed my signature and official seal, on the date last above written.

## PART IV.

## AGREEMENT.

THIS AGREEMENT, made and entered into this the .....day of.....191.....by and between .....and .....his wife, who reside on the water of.....in.....County, State of Kentucky, parties of the first part and hereinafter called the "Grantors," which expression shall include their heirs and assigns, where the context so requires or admits, and.....of.....County, Kentucky, as party of the second part, and hereinafter called the "Grantee," which expression shall include his heirs, successors, vendees and assigns where the context so requires or admits.

WITNESSETH: That for and in consideration of \$.....cash in hand paid, receipt of which is hereby acknowledged, and as first payment upon the sum of \$.....per acre, plus other good and valuable consideration, for the property rights and privileges in, of, to, on, under, concerning or appurtenant to the hereinafter described tract of land, balance whereof is to be paid one year from this date and when the amount thereof is ascertained and

conveyed as hereinafter stated, the "Grantor" has sold and hereby agrees to convey to the "Grantee" as hereinafter provided, all the coal, minerals and mineral products, all oils and gases, all fire and potters clay, all iron and iron ore, all stone, and such of the standing timber as may be, or by the "Grantee," be deemed necessary for mining purposes, and including timber necessary for railroads, or branch lines thereof, that may hereafter be constructed upon the said lands, and the exclusive rights-of-way for any and all railroads and ways, and pipe, telegraph and telephone lines that may hereafter be located on said property by the "Grantee," their heirs, successors, vendees or assigns, or by any person or corporation under authority of said "Grantee," or assigns in, of, under, concerning or appurtenant to the hereinafter described tract of land, together with the right to enter upon said lands, use and operate the same and surface thereof and make use of and for this purpose divert water courses thereon, in any and every manner that may be deemed necessary or convenient for mining, and therefrom removing or otherwise utilizing the products of said minerals, and for the transportation therefrom of said articles, and the rights of use of such, as well for the removal of the products taken out of any other land, owned or hereafter acquired by the "Grantee," and the right to erect upon the said land, maintain, use and at pleasure remove therefrom, all such buildings and structures as may be necessary or convenient to the exercise and enjoyment of the rights and privileges herein and in the use of said land and surface thereof by the "Grantee," he, his heirs, successors, vendees or assigns shall be free from and are hereby released from liability or claim of damage to the said "Grantors," personal representative, heirs and assigns. Free access to, upon and over the said land is hereby conferred upon the "Grantee" for the purpose of surveying and prospecting the aforesaid property and interest, but there is reserved in this agreement, and to be reserved also in the deed made pursuant hereto, to the "Grantors" all the timber upon the said land, except that necessary for mining and the purposes hereinbefore mentioned, and the free use of land for agricultural purposes so far as such use is consistent with the rights hereby sold and the right to mine and use coal for his own household and domestic purposes.

Before the "Grantors" can demand as matter of strict right, the payment of said deferred purchase money, the number of acres thereof is to be determined by actual survey, made by, or under the direction of a competent civil engineer, at the expense of the "Grantors," and the "Grantors" shall furnish a complete abstract showing title in them, and thereupon convey or tender to the "Grantee" deed containing covenants of general warranty, and the further covenants that they are seized in fee simple of said land of the rights thereunder, in actual possession thereof, and have good right and full power and authority to convey the same, and that the "Grantee" shall and may have, hold and enjoy the rights granted, free from eviction or disturbance by title paramount to that conveyed by the said deed, and that the land, including the interests hereby sold and thereby conveyed, are free from all liens or encumbrances; concerning which covenants it is hereby expressly declared, that representation as to the same and the aforesaid terms of said warranty to be made, are declared an essential condition and moving consideration for the execution of this agreement.

The following is a description of the lands and property referred to as the subject matter of this piece of writing, situate in.....County, State of Kentucky, on the waters of.....Bounded as follows:

On the North by the lands of.....

On the East by the lands of.....

On the South by the lands of.....

On the West by the lands of.....

and further

IN TESTIMONY WHEREOF the said.....and.....his wife, have hereunto set their hands and seals, the day and year first above written, and the said "Grantee" has hereunto caused his name to be affixed.

.....(Seal)

.....(Seal)

.....(Seal)

.....(Seal)

WITNESS

.....  
.....

## ACKNOWLEDGMENT.

STATE OF KENTUCKY, }  
 County of..... } To-wit:

I,.....a Notary Public in and for  
 the County and State aforesaid, certify that.....  
 .....and.....his wife, whose  
 names are signed to the writing hereto annexed, bearing  
 date the..... day of.....191....., this day acknowl-  
 edged the same before me in my County aforesaid. My  
 commission as Notary Public will expire on the.....  
 day of.....191.....

Given under my hand and seal of office this.....  
 day of.....191.....

.....  
 Notary Public in and for the County and State aforesaid.

STATE OF KENTUCKY, }  
 County of..... } To-wit:

I,....., County Clerk in and for the  
 County and State aforesaid, certify that.....  
 and.....his wife, whose names are signed  
 to the writing above bearing date the..... day of.....  
 191....., this day acknowledged the same before me in my  
 county aforesaid.

Given under my hand this.....day of.....191.....

.....  
 County Clerk in and for the County and State aforesaid.

STATE OF KENTUCKY, }  
 County of..... } To-wit:

I,....., County Clerk in and for  
 the foregoing County and State aforesaid, certify that the  
 foregoing instrument of writing from.....  
 and.....his wife, to.....  
 bearing date this..... day of....., 191....., was this  
 day produced before me in said County and State and the  
 acknowledgment thereof by the said grantors duly proved  
 as required by law by the oath of.....one  
 of the subscribing witnesses thereto, who having first  
 been duly sworn by me testified that said instrument was  
 signed in his presence and in the presence of.....

the other subscribing witness thereto, by the grantors, and that they as subscribing witnesses signed their names as attesting witnesses thereto at the request of said grantors.....and.....in their presence and in the presence of each other.

Given under my hand this.....day of.....191.....

.....  
County Clerk in and for the County and State aforesaid.

#### RECORDATION.

STATE OF KENTUCKY,                    }  
County of ..... } To-wit:

I,.....Clerk of the County Court in and for the County and State aforesaid, do certify that the foregoing instrument of writing from.....and.....his wife, to.....bearing date the.....day of.....191....., was this day lodged in my office for record, whereupon the same, together with this and the foregoing certificate, have been duly recorded in my office.

Witness my hand this.....day of.....191.....

.....Clerk  
By.....Deputy

(Authors Note—This Agreement form is essentially a Title Bond).

#### PART V.

##### ASSIGNMENT OF OIL AND GAS LEASE.

WHEREAS, On the.....day of.....191....., a certain oil and gas mining lease was made and entered into by and between.....Lessor,.....Lessee, covering the following described land in the County of.....and State of.....to-wit:

Said lease being recorded in the office of the Register of Deeds in and for said County in Book....., page....., and

WHEREAS, The said lease and all rights thereunder or incident thereto are now owned by.....

NOW, THEREFORE, For and in consideration of One Dollar (and other good and valuable considerations), the receipt of which is hereby acknowledged, the under-

signed, the present owner.....of the said lease and all rights thereunder or incident thereto, do.....hereby bargain, sell, transfer, assign and convey unto.....of.....right, title and interest of the original lessee and present owner.....in and to said lease and rights thereunder insofar as it covers the.....together with all personal property used or obtained in connection therewith to.....and.....heirs, successors and assigns.

And for the same consideration, the undersigned for .....and.....heirs, successors and representatives, do.....covenant with the said assignee.....heirs, successors or assigns that.....the lawful owner.....of the said lease and rights and interests thereunder and of the personal property thereon or used in connection therewith; that the undersigned.....good right and authority to sell and convey the same, and that said rights, interest and property are free and clear from all liens and incumbrances, and that all rentals and royalties due and payable thereunder have been duly paid.

IN WITNESS WHEREOF, The undersigned owner..... and assignor..... ha..... signed and sealed this instrument this .....day of.....191.....

.....(Seal)  
.....(Seal)  
.....(Seal)

OKLAHOMA FORM OF ACKNOWLEDGMENT

STATE OF OKLAHOMA, }  
County of.....} ss.

On this .....day of....., A. D., 191....., before me, the undersigned, Notary Public in and for the County and State aforesaid, personally appeared.....to me known to be the identical person... who executed the within and foregoing instrument and acknowledged to me that .....he..... executed the same as .....h..... free and voluntary act and deed for the uses and purposes therein set forth.

Given under my hand and seal of office the day and year last above written.  
My commission expires.....

.....  
Notary Public.

## KANSAS FORM OF ACKNOWLEDGMENT

STATE OF KANSAS, }  
 County of..... } ss.

BE IT REMEMBERED, That on this.....day of....., A. D. 191....., before me, a Notary Public in and for said County and State, came.....and.....who.....personally known to me to be the same person.....who executed the within and foregoing instrument of writing and as such person.....duly acknowledged the execution of the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my notarial seal the day and year last above written.

My commission expires.....

.....  
 Notary Public.

## ACKNOWLEDGMENT FOR CORPORATION.

STATE OF..... }  
 County of..... } ss.

On this.....day of....., A. D. 191....., before me, the undersigned, a Notary Public in and for the County and State aforesaid, personally appeared.....and.....to me known to be the identical person.....who subscribed the name of the maker thereof to the foregoing instrument as its.....and acknowledged to me that he executed the same as his free and voluntary act and deed, and as the free and voluntary act and deed of such corporation, for the uses and purposes herein set forth.

Given under my hand and seal of office the day and year last above written.

My commission expires.....

.....  
 Notary Public.

## GLOSSARY.

### TERMS AND METHODS, AS APPLIED IN THE OIL AND GAS INDUSTRY.

*Crude Oil.*—The raw oil product as it comes from the well.

*Fuel Oil.*—The residue from the crude oil after the gasoline has been extracted. Used as fuel by railroads, steamships, factories and heating plants.

*Oil Sand.*—This term refers to the thick layers of porous rock found at various depths below the surface of the earth. This oil sand or porous sandstone is nature's store-house for crude oil. Usually the thicker these layers of sand are the greater the production and the longer the life of the oil well.

*Derrick-Standard.*—The tall framework which must be constructed before the drilling of a deep well can start. The average height of the standard derrick is seventy-five feet. The great height is necessary on account of the length of the drilling tools which must be lowered into and hoisted out of the wells.

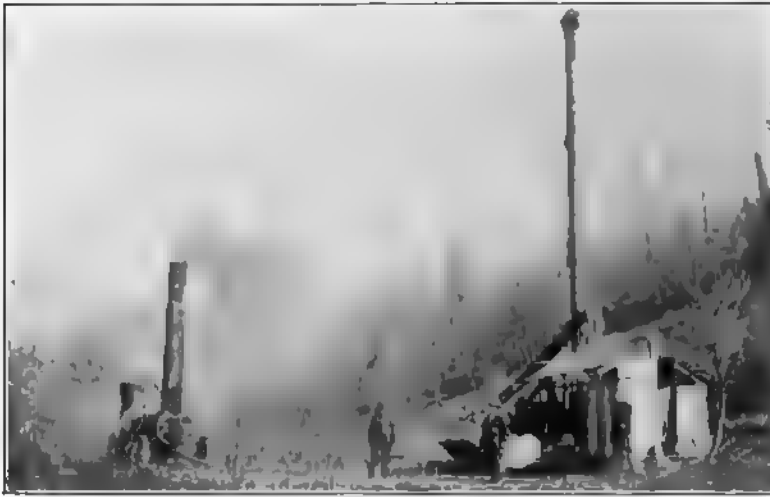


A STANDARD RIG NEAR ESTILL FURNACE.

In the deeper drilling sections of the Estill-Lee-Powell Field drilling rigs of this type secure better results than the portable type. Photo by W. R. Jillson, 1917.

*Rig.*—The derrick and all that goes with it; the drilling apparatus.

*Portable Rig.*—Movable drilling machine used for shallow and medium shallow wells of five hundred to fourteen hundred feet.



A PORTABLE DRILLING RIG ON BIG SINKING.

In many parts of this notable Kentucky Oil Field, portable rigs like the one seen above secure quite as good results as the more costly Standard rigs.

*Drilling Tools.*—The steel bit about six feet long, the steel beam about thirty feet long and the steel jars about six feet long, which are all firmly fastened to the end of the drilling cable. The combined weight of these tools is from four thousand to eight thousand pounds, depending upon the length and diameter of the stem.

*Bailer.*—This is a steel bucket, usually about thirty feet long and from five to eight inches in diameter. It is used in bailing out water and gravel produced by the drill. The bailer has a false bottom, which is raised when it touches the bottom of the well and allows the bailer to fill up with water, sand and gravel, then immediately closes when the bailer is lifted. This mud, water and sand are emptied into a pond at the side of the rig or derrick. The small particles of sand or gravel which come up in the bailer are carefully examined by the driller, who

should keep an exact record of the formation found at every foot of the well depth.

*Casing.*—Twenty-foot joints of steel pipe which are used to case out water and prevent caving of the wells in drilling. This casing is used in all sizes from sixteen inch down to four inches in diameter. The twenty-foot joints are fastened together as they are lowered into the well. Casing begins from the top of the ground and each time a string of casing goes into the wells the size of the drill bit must be reduced, to go inside of the casing. Each string of casing must start from the top of the well. From two to a half-dozen or more different sizes of casings are used in each well—one string inside the other. If the well is a producer, the inside string of casing is left in the well and the other casing removed. If the well is a non-producer, all of the casing is lifted out of the well and used again.

*Bonus Money.*—If a land owner has a piece of land in a location highly approved by geologists or close to producing oil wells, he requires the lessee to pay him, in addition to one-eighth royalty, a bonus of from one dollar to as high as one hundred dollars or more per acre for the privilege of securing the lease. This bonus money gives the lessee one year in which to begin drilling on the land. If the drilling is not started within a specified time, the lease may be cancelled or rentals may be paid at the rate of one dollar or more per acre per annum.

*Assignment.*—The legal instrument which is issued when the lease owner transfers to an individual or corporation all or part ownership in any lease.

*Production.*—The term used in designating the crude oil product of oil wells. When producing wells are disposed of, they are usually sold on the basis of the average total daily production of all the wells producing oil on the lease. In referring to a given well or lease as having such and such production reference is made to the daily production.

*Settled Production.*—The average total daily production from all the wells on any oil lease where the wells have been producing for four months to a year or more. A ten-day gauge for all the wells on the property is usually taken in order to determine the actual average settled production per day so as to arrive at a settlement



PRODUCING WELL AND STORAGE TANK ON THE JACK WELLS LEASE, IRVINE POOL EXTENSION.

Photo by McClure, Lexington.

price. At this time settled production in Kentucky is selling for as much as one thousand to fifteen hundred dollars per barrel.

*Flush Production.*—Flush production means the early, first production—the maximum production. This usually settles down to about one-tenth in the ordinary well. To illustrate: A well that was “shot” and brought in a five hundred barrel flush production will usually in most cases, settle down in three to thirty days to about fifty barrels per day “settled production.”

*Value of an Oil Well.*—A producing oil well sells on the basis of about one thousand dollars per day, for each barrel, settled production—some claim fifteen hundred dollars per day. For example—If one owned a well with a settled production of one thousand barrels per day, one should be able to sell the same for approximately \$1,000,000 to \$1,500,000.

*Life of an Oil Well.*—No man can tell how long a given well will produce a given production. Old oil men usually say that a fair production will be kept up for ten



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**CREST TEMPLE HILL ANTICLINE.**

The view is in the big bend of Skaggs Creek on the Smith farm, about ten miles south of Glasgow, Barren County, Ky. This structure was discovered by the author, March 4, 1919. Photo by Chas. Butts, 1919.



**FLOWING WELL ON MARTHA REYNOLDS LEASE.**

This well came in flowing approximately 1,200 barrels per day. On December 5, 1918, three months later, it was judged at four hundred barrels. It is located in Big Sinking Creek, Lee County, Kentucky. Photo by R. L. McClure, March, 1919.

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